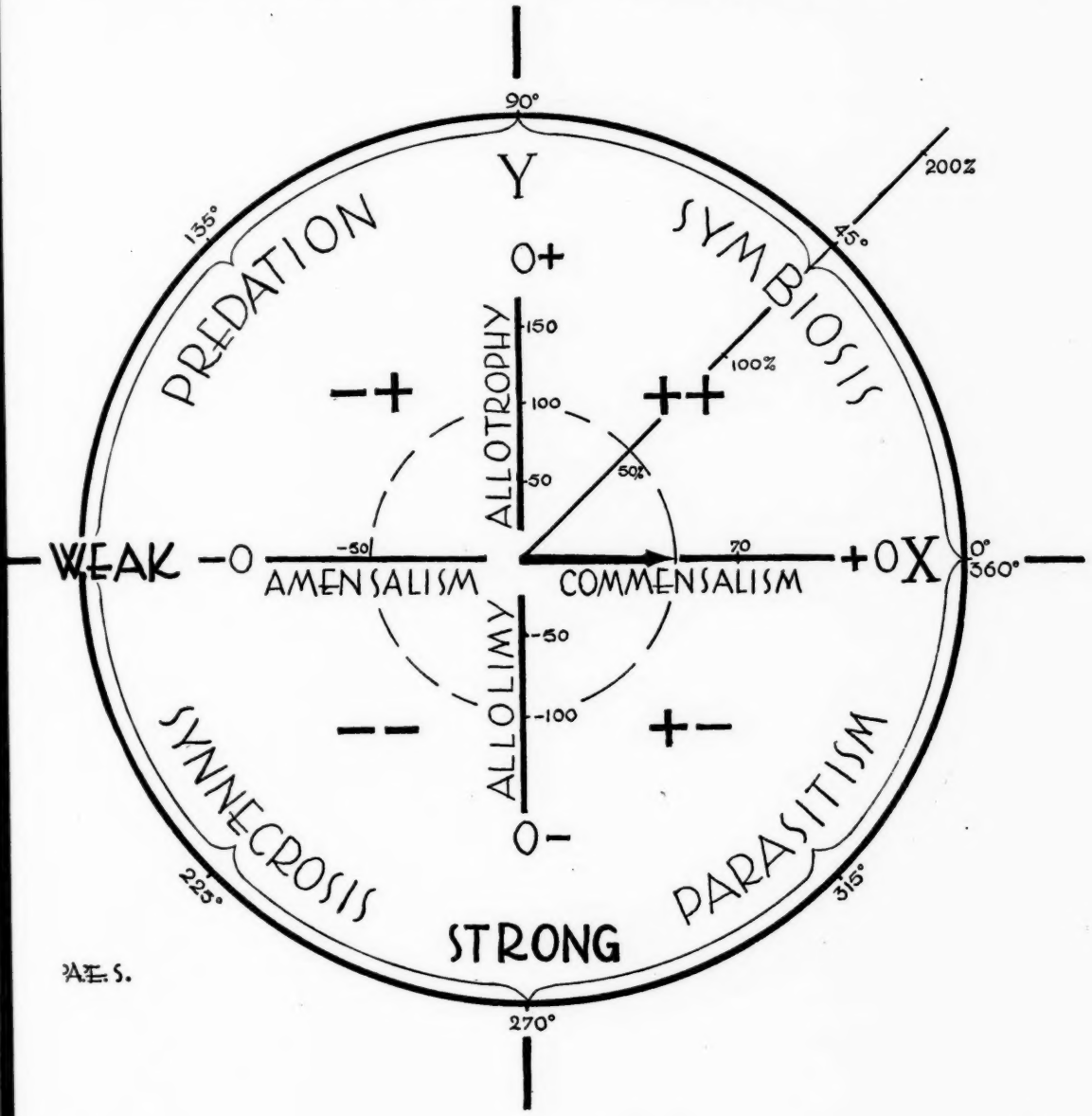
MAIN CURRENTS
IN MODERN THOUGHT



A. E. S.

THE COACTION COMPASS

Discussed on pages 45-57

MAIN CURRENTS IN MODERN THOUGHT

A co-operative journal to promote the free association of those working toward the integration of all knowledge through the study of the whole of things, Nature, Man, and Society, assuming the universe to be one, dependable, intelligible, harmonious.

VOL. 7 NO. 2 SUMMER 1949 $3 A YEAR

"Ah, but a man's reach should exceed his grasp, or what's a heaven for?" — BROWNING

Editor: F. L. KUNZ Associate Editor: E. B. SELLON

CONTENTS

The Coaction Compass	Drawn by Andrew Stavroudis	Cover Plate
Retrospect and Prospect	Editorial Summary	35
Higher Education for One World	Ordway Tead	40
A Clarification of Social Science	Edward F. Haskell	45
The Dramatic Fallacy	Weller Embler	52
Three Sonnets	Florida Watts Smyth	58
From Books and Journals		59
Perception & Conception in Education	Frank C. Wegener	62

AIMS OF THE FOUNDATION FOR INTEGRATED EDUCATION

The corporate statement of Aims declares that the Foundation has been established:

1. To collect, create, and distribute authoritative materials which will encourage the development of unified overall concepts in education; to improve the balance of relationships between the physical sciences and the social sciences; to inquire into the phenomena of purposive activity in nature, man and the universe.

2. To assist teachers to understand and use such materials, and to develop an active, realistic, comprehensive philosophy which will communicate to their students the unity, coherence, and beauty of the world in which we live.

3. To remedy, solely by such educative measures, the conceptual and hence the ethical, social, economic, and political breakdown of our times, looking to a peaceful world order.

The members, associates, and staff of the Foundation realize that the progressive discovery of unifying over-all concepts concerning man and the universe is not a task to be performed successfully in isolation from the historical, social, economic, and political context of our times, nor in terms of application less than global entirety.

The work of the Foundation is wholly educational, yet referred constantly to the contemporary scene in all its aspects, no less than to the total available wealth of human experience and knowledge.

The Foundation is incorporated under the laws of the State of New York as a non-profit educational organization. Contributions to the Foundation are tax deductible. Main Currents in Modern Thought, Quarterly, is the Journal of the Foundation.

MAIN CURRENTS IN MODERN THOUGHT is published quarterly to call attention to significant contributions to learning currently being made by leading workers in the multiple fields into which knowledge has come to be classified. It relates these advances to each other and to the classical and contemporary views of Eastern, European and American thinkers. It is designed to save time for the reader by providing a vantage-ground from which the whole world of knowledge may be surveyed and kept in proportion as it moves toward integration. Its editors assume that the principles of art, the universals of philosophy, the laws of Nature and Man as formulated by science, and the truths of comparative religion, can be orchestrated into a harmonic, meaningful, ethical body of teachings which can and should be made the central core of curricular study in the educative process at all levels of development. In condensing text, square brackets [ ] indicate editorial interpolation. Three dots . . . in the text indicates a word, phrase or passage omitted in the interest of brevity or clarity. Other usages are standard. $3.00 a year. Foreign $3.50. Contributors to MAIN CURRENTS enjoy full liberty of opinion and expression in these pages. *Copyright 1949, by F. L. Kunz, Port Chester, New York, to whom all communications regarding MAIN CURRENTS IN MODERN THOUGHT should be addressed.* *Entered as second class matter April 13th, 1946, at the post office at Port Chester, New York, under the Act of March 3rd, 1879.*

RETROSPECT & PROSPECT

Within a year the FOUNDATION FOR INTEGRATED EDUCATION has been transformed from an experimental venture into an accepted enterprise, charged with a duty not uniquely avowed by any other national organization. Its role is dual: first, the diligent pursuit and encouragement of studies of a conceptually integrative character, as outlined in the last previous issue of MAIN CURRENTS, Spring, 1949; second, to disseminate news of progress and reports of findings among individual teachers and faculties in conferences and workshops, campus visits, publications, correspondence, private conversations, general publicity, radio broadcasts, and other means, new and old.

At first glance, the work of the Foundation may seem aloof from the world's turmoil and present dangerous course. Any surface appearance of academic impracticality is entirely deceptive, however. We hold that our program is in fact the most urgent and powerful instrument for human happiness and world peace, and that there is no substitute for it. It is only to be expected that a young movement, which is attempting to perform a fundamental but quite unprecedented task, should be inadequately appreciated at first. This is especially true of a time like the present. When confronted with a crisis, a society like ours looks to material might for its salvation and the preservation of its traditions. Those who see beyond phenomena into the heart of things, however, remember the long procession of dead civilizations which were persuaded into concentration upon short-range practicality and finally expired of it, having expended their resources upon armies, sports arenas, reservoirs, monuments, trade, and nearly everything except philosophy.

The work of the Foundation appeals to those who know that a *valid insight, commonly shared,* is the greatest wealth and security a person or a people can possess. It is natural that recognition of such values should be found most frequently among educators, to whom history, and the perspective its study gives, are matters of every-day acquaintance. It is therefore only to be expected that the Foundation should win friendship and support in academic circles first of all. But help along our lines is coming from other quarters, as will be seen in the Rockefeller Foundation *Review* for 1948, which we quote with permission. (See page 44.)

The remarkable transformation from a hope to a reality which we are here chronicling, is due chiefly to incontestible events of the decade now closing. From 1940 onward, and crucially from 1942 to about 1945, nearly every major university and college sought to rebalance its courses of study so as to offer general education as a basis for living and as a framework for specialization. A few tried valiantly to achieve at the same time an educational philosophy which would make the whole corpus of learning come alive as the description of an intelligible universe. These men and women were aware of the long years and repeated efforts given by others to the achievement of a better general educational experience, efforts made often without trying to discover a modern concensus. Some had themselves participated in such efforts by concentrating upon some special historical instance of a synthesis such as the Greek or the Mediaeval, or by communicating intellectual and other skills in philosophical, scientific and aesthetic method, or by offering project experience which forces the student to draw on all resources, or by closely sampling the chief assays of the world's cultural gains, or by using interpretations of some one great mind, living or dead, as the guide. To vigorous minds it soon became evident that no policies of this kind would result in a valid concensus of learning, democratically achieved, as the basis for an American ideology. That need was daily becoming more clearly seen and more widely discussed.

As the efforts to develop new curricula failed in varying degrees, during the last decade, a scattered but considerable body of teachers and administrative officers was educated through such local effort and failure into a realization of the necessity for a conceptual concensus. Some felt the need more acutely than others, but in all, a considerable group consciously awaited events which would allow them to participate in an organized and sustained effort to begin the systematic development of a concensus good for our times.

The growth of the Foundation is due to the existence of this large body of educators scattered throughout the land. They are not credulous enough to believe that a concensus will be readily achieved, nor that a formal logical structure is all that is needed to reorganize human habit. They are merely aware of a fact indisputable in history: insight into the nature of man, the nature of the universe, and into the mutual relations of these two, is indispensible, and should not be a matter of speculation nor of private judgment alone if

the nation now and mankind later as a whole are to be brought to union and peace. The current mutual confrontation of Russia and the United States only points up more sharply the basic role of philosophy in private and public affairs. The fact that so few of the men responsible for public administration know so little of the role of a concensus, and the present-day means of getting one, makes the work of the Foundation only the more obviously needed.

Since there existed such a large, though scattered, group of teachers who were enlightened on this point, it was inevitable that the mere announcement of our purpose should bring, as it has, immediate response. Our program was first tested by public invitation to a single general conference at the University of New Hampshire, 1948. This was conspicuously successful. Thus encouraged, we invited scholars known to be concerned about the conceptual breakdown to join formally in a sustained effort. Their response launched our work. The order of these and other events during our first year of programmed activity among educators was as follows:

The Year 1948-1949

THE FIRST NATIONAL WORKSHOP

The Foundation held its first national Workshop on Integration in August, 1948 at the University of New Hampshire. It was most successful, and proved to be the means of enlisting a nucleus of educators as warm and enthusiastic supporters of the Foundation's work. The attendance was about 50, and the colleges represented were twenty-five, including Boston University, Bucknell, Harvard, Pittsburgh, Georgia Institute of Technology, Dakota Wesleyan, Western Reserve, College of the City of New York. Some of the principal speakers were Gardner Murphy, City College; Judson R. Butler, Dean, General College, Boston University; O. Hobart Mowrer, University of Illinois; and Oliver L. Reiser, University of Pittsburgh.

ISSUES IN INTEGRATION

The proceedings of the Durham Workshop, entitled *Issues in Integration,* with a preface by Ordway Tead, Chairman of the Board of Higher Education of New York City, published in January, 1949, sold to colleges and universities in most states, and several foreign countries. Orders continue to come in for this book at the rate of two and three a week. The volume sells at $2.50.

SOCIETY FOR TEACHERS OF GENERAL EDUCATION

Dean Judson R. Butler, General College, Boston University, and O. Hobart Mowrer of Illinois, as well as Earl J. McGrath, now Commissioner of Education, had expressed their opinion that a professional society for Teachers of General Education was needed. The Foundation staff felt that this would benefit the movement toward integrative education. A survey has been made of college teachers in the New England area which shows an entirely favorable attitude toward the plan. A conference to take formal action is being discussed as the next step.

ROUND TABLE ON INTEGRATION

In cooperation with Cleveland College of Western Reserve University, and Baldwin-Wallace College, the Foundation held a day-long Round Table on Integration in Cleveland College on October 16, 1948. Dean John P. Barden of Cleveland College was Chairman, and Robert S. Hartman of Ohio State University, William E. Kerstetter of Baldwin-Wallace College and Dean Myron F. Wicke of the latter college were the principal resource leaders. F. L. Kunz and Gordon B. Halstead represented the Foundation. The discussion centered around the questions: "What are the objectives of an integrative education? What values can it confirm? How can it be done?"

THE RESEARCH COORDINATING BOARD

The most important event that occurred during the year was the formation of the Foundation's Research Coordinating Board. This was the outcome of a weekend meeting held on December 4th and 5th at the home of Mr. Julius Stulman, a member of the Foundation's Provisional Executive Committee, in Larchmont, New York.

The Foundation was honored to have at this meeting, which was under the Chairmanship of Professor Kirtley F. Mather of Harvard, President of the Foundation, a group of outstanding scholars in the country:

John P. Barden, Dean, Cleveland College, Western Reserve University

Algernon D. Black, Executive Leader, N. Y. Society for Ethical Culture

Frederick H. Burkhardt, President, Bennington College

Arthur Compton, Chancellor, Washington University

Norman Cousins, Editor, Saturday Review of Literature

Harold Fields, Examiner, Board of Education, New York City

Roger C. Gay, Dean, New York Medical College

Robert S. Hartman, Professor of Philosophy, Ohio State University

Clyde K. Kluckhohn, Professor of Anthropology, Harvard University

M. F. Ashley Montagu, now Chairman of Department of Anthropology, Rutgers University

F. S. C. Northrop, Sterling Professor of Philosophy and Law, Yale University

Gerald B. Phelan, Director, Mediaeval Institute, University of Notre Dame

Oliver L. Reiser, Professor of Philosophy, University of Pittsburgh

J. B. Rhine, Director, Parapsychology Laboratory, Duke University

Edmund W. Sinnott, Director, Sheffield Scientific School, Yale University, and President, American Association for the Advancement of Science

Paul J. Selgin, Electronic Section, National Bureau of Standards, Washington, D. C.

Harlow Shapley, Director, Harvard Observatory

P. A. Sorokin, Professor of Sociology, Harvard University

Harold Taylor, President, Sarah Lawrence College

Ordway Tead, Chairman, Board of Higher Education, New York City

Robert Ulich, Professor of Education, Harvard University Graduate School of Education

At the meeting, which was initially addressed by Professor Northrop, those present defined their ideas of integration, the need for it, and how they felt it could be achieved, and approved the formation of a Board of scholars to forward such work. On January 15, 1949, the Board held its first planning meeting, at which time it appointed an Executive Committee to carry on its work between meetings of the full Board. The initial members of the Board and of its Executive are listed later.

On February 12th and March 26th, the Executive Committee met at Yale University, under the Chairmanship of Dr. Henry Margenau (the Chairman of the Research Coordinating Board) and set up four research projects which they considered would be helpful in the field of integration.

THE FIRST GROUP OF INTEGRATIVE STUDIES:

1. Project No. 1, under the direction of Henry Margenau, Professor of Physics and Natural Philosophy at Yale University, which deals with "the methodological basis for the integration of different fields of learning."
2. Project No. 2, under the direction of Father Gerald B. Phelan, Head of the Mediaeval Institute at Notre Dame University, which will examine "relatively stable societies of the past to determine how they achieved integration."
3. Project No. 3, under the direction of F. L. Kunz, Counsellor on Studies of the Foundation, which is "a study of form and function in nature, to assemble new data supporting the concept that the universe is characterized by a sublime order and that freedom is a principle of nature indispensable for man."
4. Project No. 4, under the direction of M. F. Ashley Montagu, Professor of Anthropology at Rutgers University, which will assemble scientific evidence demonstrating that cooperation and interdependence are laws of nature and of life.

Work on these projects is proceeding, and will go forward rapidly as soon as funds have been secured.

FOUNDATION DINNER AT ANNUAL MEETING OF ASSOCIATION OF AMERICAN COLLEGES

During the Annual Meeting of the Association of American Colleges which was held in January, 1949, at the Commodore Hotel in New York City, the Foundation gave a dinner especially for those who were sponsors of the Foundation and in New York for the AAC meeting. Ordway Tead, Chairman of the Board of Higher Education, New York City, spoke, as did Carter Davidson, President of Union College. Among those at the dinner were J. S. Bixler, President of Colby College; Samuel Hilburn, President of Dakota Wesleyan University; W. Preston Warren of Bucknell University who represented Herbert Spencer, President of that institution; and Myron Wicke of Baldwin-Wallace. Guy Snavely, and his assistant, Robert DuBose, of the AAC were also guests of the Foundation. Several members of the Foundation's Provisional Executive Committee were present, as well as the staff. The dinner followed numerous discussions between the Foundation staff and educators which took place in free intervals during the sessions.

PUBLIC ANNOUNCEMENT OF THE RESEARCH COORDINATING BOARD

On April 28, speaking at the Kosciuszko Foundation in New York City, Dr. Henry Margenau publicly announced the formation of the Research Coordinating Board and described the projects set up. Both the New York *Times* and the New York *Herald Tribune* carried full news accounts of this meeting, and photo-offset copies of the reports were sent to Associate Members.

THE WELLESLEY WORKSHOP

June 26-30th, 1949, the Foundation held its second national Workshop at Wellesley College. One of the highlights was the presentation by the Foundation to Dr. Herbert Spencer, President of Bucknell University, of an award for the progress made in integration at that college. It was a constructive week during which the participants said that they felt solid progress was made in integrative thinking.

The attendance was about 50, and the colleges represented were twenty-seven, including Boston

University, Bucknell, Duke, Western Reserve, College of the City of New York, Rutgers, Teachers College at Columbia, West Virginia University. The principal speakers were Ordway Tead, Chairman, Board of Higher Education of the City of New York; J. B. Rhine, Duke University; M. F. Ashley Montagu, Rutgers; Edward Haskell, Council on Unified Research. We also had present representatives of: The Education Department of the N.A.M., Mr. Palmer Bevis; The Education Department of the Indian Embassy, Mr. G. S. Krishnayya; The Advanced Study Branch of the General Staff of the War Department, Col. George M. Jones.

MR. KUNZ'S TOUR

Immediately after the conclusion of the Wellesley Workshop, the undersigned left on a transcontinental tour of campus visits, as well as for the purpose of carrying through the Montecito Workshop, August 21-25th. Westward conferences were held at Montana State, with members of the faculty of the University of British Columbia, and the University of Washington, and with a number of individual educators. On the way down the Coast from Washington, stops were made at Lewis and Clark College, Linfield College and the University of Oregon.

The Year 1949-1950

THE WESTERN WORKSHOP AT MONTECITO, CALIF.

The Third national Workshop of the Foundation took place at Montecito School (in the suburbs of Santa Barbara) California, August 21-25th. We had a much larger proportion of physical scientists at this Workshop than at any previous one, and their precise thinking added to the productiveness of the gathering. Those present were unanimous in saying that the Workshop gave them new suggestions and ideas for use on their own campuses. This was perhaps the most successful of all the Foundation's Workshops. The attendance was about 45, and the colleges represented were twenty-two, including the University of Oregon, University of New Mexico, University of Redlands, Scripps, Loyola (Los Angeles), Pacific University, University of California, Oklahoma A & M, and the University of Alaska.

Among the principal speakers were Linus Pauling, California Institute of Technology, Edward Haskell, Council on Unified Research, Frank C. Wegener, University of Southern California. We had as visitors at the Workshop Professor L. G. Sillen and Mrs. Sillen, University of Stockholm; Professor Angus McIntosh, University of Edinburgh, and Professor and Mrs. J. Gallon from the University of Hawaii.

The preliminary preparations for the Western workshop at Montecito were in the hands of Mr. J. Randolph Sasnett, who visited many Pacific Coast campuses personally, explaining the purposes of the Foundation, and soliciting official representation. The response to our united labors was most gratifying. The opening address was given by a member of the Foundation's Research Co-ordinating Board, Professor Linus Pauling, California Institute of Technology. Many varieties of institutions of higher learning were represented, the majority officially. We now found ourselves, after a year of industry, on a new and more firm basis, functioning as the recognized vehicle for integrative developments.

KUSC BROADCASTS

With the kind co-operation of Mr. William H. Sener, Director of the radio department of the University of Southern California, the proceedings of the Montecito Workshop were electrically recorded by Mr. John Kunz, and edited by Miss Jean Rotzler and Mr. Robert Wilkinson, of the staff of KUSC. A weekly series of selected passages were then broadcast during October from the University Station.

CONCLUSION OF MR. KUNZ'S TOUR

As a result of the Workshop, the tour of the undersigned was extended as much as time allowed and came thus to include Chapman College, Ventura Junior College, Loyola University, Whittier College and University of Redlands, in Southern California; and Arizona State (Flagstaff), University of New Mexico (Albuquerque), Oklahoma State (Stillwater), University of Kansas City, Ohio Wesleyan, Mundelein College (Chicago), Kalamazoo College, Wayne University, and New Jersey State Teachers College in Jersey City. During January I shall be responding to invitations from colleges and universities in New York State, and to invitations from other areas in February, March, and April.

1950 TOUR BY MR. HASKELL

Another important development, brought about through the initiative of President H. G. Hudson of Illinois College, is the promotion of a nationwide tour by Mr. Edward Haskell, to occupy February, March and April, under Foundation auspices. Mr. Sasnett is collaborating with President Hudson and the Foundation as respects the West Coast. Correspondence as regards dates outward from New York (February) and returning (April) may be addressed to the Foundation (address below), and will be relayed to Mr. Haskell. Inquiries for Coast engagements (March) may be addressed to Mr. J. Randolph Sasnett, 967½ West 30th Street, Los Angeles 7, California. Mr. Sasnett is the Director of the Religion in Education Foundation.

THE STILLWATER CONFERENCE
June 6-7-8-9

President Bennett and Dean Scroggs, Oklahoma A & M College (the State University at Stillwater), have invited the Foundation for Integrated Education to conduct a June 1950, co-sponsored national workshop on that campus.

F. S. C. Northrop and Henry Margenau, respectively Professor of Law and Philosophy, and of Physics and Natural Philosophy, Yale University, will act as chairmen and resource persons, and other members of the Foundations' Board will participate, along with a considerable group of leaders in education.

It is suggested that the above dates be held, and preliminary particulars obtained from one or other of the undernoted. Full details will be widely announced as soon as possible.

Dean Schiller Scroogs
Oklahoma Agricultural & Mechanical College
Stillwater, Oklahoma

or F. L. Kunz
Foundation for Integrated Education
60 East 42nd Street,
New York 17, N. Y.

Proposals for similarly co-sponsored conferences were made by qualified faculty members of other institutions, and particulars will be announced from time to time. Such regional workshops are very much needed, in order to expedite acquaintance with the program in hand.

OTHER 1950 ACTIVITIES

In 1950 also the proposed Institute for Integrative Studies is likely to become immediate business. Discussions have been proceeding with officers at the University of Pennsylvania, looking to setting up a physical plant for integrative studies at Valley Forge. Certainly the present time is proving to be a "winter of our discontent" for the whole world, and a time for a determined stand against the major enemies of human liberty, ignorance and confusion, smugness and selfishness. The historical way in which Americans think and feel about Valley Forge, and the Revolution which made for freedom here two hundred years ago, could take on new meaning if the place and the name were to be associated with a new Resolution. The Institute is necessary and inevitable. The question is only where and how soon a beginning can be made on thus centralizing supervision of the Foundation's research program and commencing the education of teachers for integrative programs of study.

In addition to conferences of educators, it is desirable to develop in principal American cities groups of friends of the Foundation, capable of interpreting its work into public policy. Meetings with men and women of such abilities would most suitably begin in the national capitol city itself, and be continued in Philadelphia, New York, Boston, Hartford and elsewhere. If sufficient interest (and suitable study material) is available, such groups may continue to meet and discuss the programs and findings of the Foundation. Our chief task is integrative research, and there can be no substitute for such studies. Yet while the central duty of inquiry proceeds, our friends everywhere may profit themselves, and help the nation and the world, by looking and moving forward in terms of new hope and new insight, as these are shaped.

GRATEFUL ACKNOWLEDGMENTS

The constancy to this work of the directive bodies of the Foundation has been most heartening. The Provisional Executive Committee (which acts as our Trustees) has met with utmost regularity, and the members of the Executive Committee of the Research Co-ordinating Board have generously responded to requests for guidance. Professor Mather and Professor Margenau have been available to us for all occasions, public and private, which have demanded their skill and wisdom.

The devotion of the many official and unofficial friends of the Foundation is no less remarkable and heartening. Source reading, editing, recording and transcribing work of professional caliber have been freely given by Mrs. Emily Sellon and Mr. and Mrs. Robert Whorf. Our Treasurer, Mr. John Sellon, a busy executive at the American Re-Insurance Company, has invariably made himself available to us for services far beyond those customary to treasurers of new organizations. Mr. Gordon B. Halstead's talented contribution could not be continued by him after June, 1949, although he remains upon the Provisional Executive Committee, and his counsel will thus be available. We also miss the kind of effective help given during the past year by Miss Doris Hoffman, and Miss Gibbes. We must especially thank Mrs. Margaret Wagner, who left a lucrative position in 1947, to assist in launching this work, and has given her skill and devotion with undivided loyalty ever since.

In order to keep this work going without interruption, our little staff of four in 1948-1949 did not hesitate to strain every personal resource to sustain momentum. The staff group, both those partly paid and those entirely honorary, will be grateful for any help the work may receive in 1949-1950 from those who understand the critical importance of the Foundation. Such folk are not many, in any case, and it is not easy to reach them. The assistance of the readers of this annual report is sought to widen our circle.

F. L. KUNZ

Please address: The Foundation for Integrated Education, 60 East 42nd Street, New York 17, New York.

HIGHER EDUCATION FOR ONE WORLD*

A Possible Approach to Policies and Methods

Ordway Tead
Chairman, Board of Higher Education, New York City

> *"The crucial task of higher education today is to provide a unified general education for American youth."*
> . . . PRESIDENT'S COMMISSION ON HIGHER EDUCATION

As I sat in the twilight dimness of the Stadium Concert opening in New York City the other evening, I had a clearer sense than ever before of why I had accepted this baffling assignment. If an analogy can carry any message, the conductor, as he stood there, serenely in command of the variegated contributions of the performances of several scores of players, rendering for himself and for others a gratifying and rewarding harmony, seemed to me to embody some suggestion of what we would like an integrated education to be.

Here was a seemingly integrated person, acting in a directive capacity, to bring effectively together in timing and space the reconstruction of a great artist's insight of beauty and truth. Each entire score was in his memory by virtue of careful study. In a double-meant sense, he knew the score! He brought into significant relation a wide variety of instrumentalities to project the vision he would realize. His humanness was of course revealed in emphasis, in his own interpretation of intimations of immortality, wonder and loveliness. His creative compulsion was receiving overt expression. Perhaps all it needed for the analogy to have even greater suggestiveness for us would have been that he had himself written the music whose score he was directing. But the sense of personalized, distinctive, formative interpretation and influence was his; genuine self-expression was his; self-abandonment in a freely projected vision was his; a sense of unifying disparate ways of contributing to a total harmony was his; a sense of being caught up into the evocation of some super-rational perception of beauty was his; a sense of coherent purpose and performance flowing from the music's requirement was his. An awareness also could not fail to possess him that he was at once an heir of the ages and co-worker with great creators whose prior gifts were essential to his accomplishment.

*Talk delivered at Conference of Foundation for Integrated Education, Wellesley, Massachusetts, June 26, 1949.

As he conducted, surely we beheld an apotheosis of ennobled living — we beheld an aspect of the good life consciously realized as good.

And this realization was not his alone. As creator and re-creator of deep human penetration, he implicated with himself, as in a real sense co-creators and co-visionaries, all those who would in some degree share appreciatively in hearing that which he had evoked. He at once associated himself with others of diverse talents and instruments to transcend their several individual possibilities; and he involved with himself those who had ears to hear in sharing in the esthetic projection of his artistry. He made joy; he helped others to find joy. He had the capacity to share his richness of spirit with those capable esthetically of rejoicing with him.

I submit that in considerable measure he stands by analogy somehow as an arch-type of that which we would ask the educated individual to be and to do if his education is flowering into creative and appreciative incandescence. Here was exemplified or symbolized the possessor of an integrated education.

But what light does this analogy throw upon our theme? It does, I submit, suggest that what we want out of education as it gets higher (by which we mean more extended in time and more mature in response) is that the performer, the creator, the appreciator, the comprehender, and the worshipper of ultimates, may be united in the same person and in every person up to the potential of his powers. The problem, first, is as to how each educated person can, so to say, be at once in command of his own effort at orchestration and at the same time realize that he is a member of an orchestra composed of his fellow citizens.

And second, we need to know how this dual result is to be brought about. The phrase in current employ, presumably suggesting some prescriptions of outlook and method, is "integrated general education."

My theme will be that an invaluable, if not essential, frame within which to consider this integrated general education is the need for bringing one world into existence in the minds of individuals, and structurally and operationally in the world. This frame would help to center the purpose of education on the service of man seen above any enhancement of nationalism and would help to give education the dynamism and enthusiasm which a compelling, comprehensive, and appealing goal is alone capable of creating. And the integration envisaged as shaping educational goals and methods would be twofold. It would include and combine the unifying of each person within himself as a whole man, and the social unifying of building toward political and other world organizations. Both entail and require the vigorous

philosophic and esthetic explorations toward intellectual and spiritual unity, which are the special concern of this Foundation.

It will help us to understand why this demand for some rational unification is becoming increasingly insistent if we pause to ask some of the reasons for it. For recognition of these reasons should help to throw a little light on how to proceed educationally.

There is, first, the claim which life makes upon each individual to reconcile developing selfhood with the obligation imposed to society to be productive and useful. It is a claim which it takes conscious study to satisfy. Another factor is natural human curiosity as to why and how the multifarious phenomena of life can be made to hang together in some approximately coherent pattern of idea and action. There is an overpowering disposition in the intellectually active person to discover some basis of law and order, of uniformity and self-consistency within our world, to be able to view it as unity amid diversity. Indeed, it seems further true that where individuals can find a genuinely acceptable *rationale,* that fact itself is a support for their effort to find significance, purpose and direction in living. And there is, further, the more obvious, outward need for having men with minds so armed and intentions so disposed that the increasing task of conducting world affairs shall be competently and peacefully carried out.

The impetus toward integration is thus strongly motivated. But it confronts some real educational questions needing to be faced at the college level. Among these are some gauge as to the sheer amount of available knowledge which the individual needs as his basis for informed and satisfying action. And his question may be extended to consider the relative amounts of knowledge needed in the three great areas usually referred to as the natural sciences, the social studies and the humanities. Another question is as to the methods of determining what is valuable and worthwhile in personal and social action. Another factor is how most effectively young people can be freed of preconceptions and prejudices deriving from limited experience and outlook. And a final complication is introduced in the underlying conflict between those who, as education goes on, contend that "man is the measure of all things" and those who would start from the ancient interrogation, "what is man that Thou art mindful of him?"

In short, education confronts three embrasive questions: How much factual knowledge? What are the possibilities ahead? And what is it valuable for us to be and to do?

A further assumption needs to be considered to the effect that if there is to be some overarching aim of enlightenment *about* and commitment *to* one world, the necessary conditions of the individual's striving to enter that world have to be stated. Persons who are neurotic, frustrated, obsessive, prejudiced, inferior, aggressive, fearful, and self-centered are handicapped as they try to learn. Yet it is out of the learning of all too many such people that the citizens of one world have to be recruited. Ideally, it would be young people free of major emotional blocks who would most eagerly and rapidly come to an acceptance of the total outlook which world citizenship presumably implies. Here seem to me to be at once a handicap and a challenge because the overcoming of all the emotional disturbances above suggested is essential for all intellectual and spiritual growth.

A somewhat different way of stating a necessary condition for fruitful learning is to say that education has to be planned and offered so that the student has currently a sense that his presently felt needs are being ministered to. And by this I do not mean that his momentary interests are being considered so much as his growing awareness of his own relation to the problems of the world, in such a manner as to focus eagerly his capacities to come to grips with them. For "we learn what we live and only what we live and as we live it to the degree that we live it," as Kilpatrick soundly insists.

On the sound assumption that every student has to achieve *his own* unifying of outlook and knowledge, it still is true that as education goes on, the individual must feel a progressive sense that this integration is actually occurring, that it is individually meaningful, that it is relevant to his more effective attack on life. Integration advances only as the learning of it registers in the satisfactions to the person. Subject matter such as we will presently discuss will be truly learned and therefore valuable only as *its present connection with the student's present concern and desire for comprehension is persuasively established.* All this means that every supporting condition which can help the student to approach his intellectual and moral task with a free mind and unimpaired vigor is essential to educational success. There is a vital sense in which each individual has to know his own inner world as one, before in an objective way he can be an active partner in a socially organized one world.

The primary approach to a higher education for one world has necessarily to do with building the favorable attitudes and supplying the factual knowledge which focus in this supporting direction. But before subject matter and content are more specifically considered, it is important to acknowledge that there are certain underlying intentions which education is trying to realize. These are objectives of living which underlie the objectives of learning. Without elaboration, I suggest that the most important of these are: advancement of (1) the meaning of democracy, (2) the meaning of science, (3) the meaning of cultural inter-relations

and of cultural diversity, (4) the importance of amicable human relations personally and through groups, (5) the meaning of ethical obligation, and (6) the sense of philosophical and theological orientation. Here, as in my subsequent discussion of subject matter, my conviction is that there are always two kinds of learning going on almost simultaneously, — that which is direct and that which is indirect.* And teachers of the most diverse subjects seem to me to be under obligation to see the relation—sometimes direct, sometimes indirect—of their instruction to the grasp and extension of the concepts relative to the life objectives I have just enumerated. Teachers have thus to be responsible for injecting facts, sidelights, and intuitions about one or another of these concepts where relevant as their instruction goes forward. The teacher who would be attentive to this requirement would already be achieving a valuable measure of consolidation of outlook which would be integrative for teacher and student alike.

METHODS

We do not, of course, as yet know of any one best way to carry on instruction toward the most adequate global awareness of individuals. One method which has been somewhat experimented with is to occupy a full year with the study of a selected great civilization to be followed by a comparative study of another selected great civilization in another year. At its best, this would mean that the student with appropriate experts is exploring the sociology, politics, economics, science and technology, esthetic interests and religious life of a significant civilization. The outlook induced by such a study wisely guided under able teachers would surely have important integrative value. But there are conceivably limitations in this method of approach which account for the fact that at the college level it has not become widely extended.

A more popular approach is that of which Columbia College of Columbia University has supplied the most extended and successful object lesson. And without paying attention to all the variants of its program which are now appearing elsewhere, it is enough to note that there is a divisional rather than a departmental approach to instruction, typically classified as natural sciences, social studies and the humanities. And it seems to me that the real educational problem here is as to how in the handling of this material through the first two to three years of college, all students can be assured of a broadening of their view of the world into some reasonably universalistic reality.

It seems to me that the principle to be invoked here for improved outcomes is that the material in these three areas shall be selected so as to supply a comparative study of the life of the great nations, races, cultures, and religions of the world. We are all familiar with the criticism of present instruction as focussed on the developments of Western civilization. And I am prepared to admit that instruction would have to be even more highly selective than is now true out of Western civilization, if there were to be adequate additional recognition of the contributions of other great civilizations and cultures.

But if in terms of the social studies, for example, we conceive of work unfolding through the first three college years on a global basis, it is possible to envisage what a profound reconstruction in individual outlook may be attained. For the student would be considering comparatively the political organizations and structures of different areas, differing methods of economic activity, the differing social and esthetic standards and practices, and the differing underlying preconceptions about what is held valuable and why. The treatment employed would be in part historical for purposes of perspective, in part in terms of the contributions of great persons, in part in terms of definitive concepts, and in part in terms of underlying assumptions regarding standards of human behavior.

I am, of course, profoundly influenced by the thought of F. S. C. Northrop in offering this suggestion for study leading to a one-world integration. His own thinking is well suggested in the following paragraph from *The Logic of the Sciences and the Humanities.** But his other two books, *The Meeting of East and West* and *Ideological Differences and World Order* are also equally indispensable to an understanding of the point of view and approach which he is presenting. He says:

> "Its first task is definite and straightforward. It consists in taking the method of logical, accompanied by historical, analysis and applying it to an existent culture (such as that of the Spanish Colonial Period or to the French Nineteenth Century Period of Mexico), to trace the culture in question back to the antecedent economic, political, and religious doctrines, which in turn go back to the primary and more elementary philosophical presuppositions upon which they rest. Having done this for the major cultures of the world that are likely to enter into the peace, the second task becomes equally definite. It is that of finding a single set of assumptions more general and catholic than any of the traditional ones revealed by the previous analyses, which so far as possible gives meaning to all the basic assumptions of the traditional cultures of the world and at the same time relates them so that, with the minimum repudiation of traditional beliefs and values, all peoples can continue to be their traditional selves without

* See my *College Teaching and College Learning*, Yale University Press, 1948.

* Macmillan Company, New York, 1947, pp. 295-6.

conflict with a similar expression of traditional indigenous assumptions and ideals upon the part of their neighbors."

In a remarkably similar vein, L. L. Whyte in *Everyman Looks Forward* says:**

"With man's deepening knowledge of his own biological nature and historical situation, a new attitude becomes possible which does not so much challenge the old attitudes as transcend and unite them, revealing each as a variant giving a special emphasis to one universal truth. Each current doctrine is valid within its own limitations, and can remain effective, provided it is reinterpreted as a special form of general truth, with the emphasis appropriate to a particular people. Thus the consensus can resolve the conflict without challenging the conflicting doctrines, by transforming them into variants of a common truth."

These quotations address themselves, of course, to problems of analysis and comprehension which extend beyond the social studies. They are equally relevant to what might helpfully be said about a new attack on the study of science and of the humanities, for the general student.

Consider from this point of view the kind of progressive scientific grasp which could be attained from two or three years of study as the student is exposed to the history of scientific ideas, the history of individual scientific contributions, the developing concepts, hypotheses, and methods of science,—all from a world point of view.

The same thinking can be invoked with respect to the study of the humanities, which are the embodiment of the great creative insights of mankind in all the media of artistic expression. Out of comprehensive study here, the problem of human values would be identified, the great, classic art forms would be interpreted, and the differences and the similarities of utterance could be in some measure accounted for and sympathetically viewed.

I realize that this suggestion implies a range of scholarship on the part of the teacher which is all too infrequent. But if we are posing a basic problem, we must also consider fundamental attacks upon it and explore the value of various experimental approaches.

Without in any way prejudging what the outcomes of such inclusive study might be, it is in order to suggest that undoubtedly certain common elements of sound and fruitful human attitude would stand forth. For example, impulsion of the search for something called truth and beauty and goodness would seem to emerge as universally motivating. Some comparative evaluation of standards in various fields would presumably come to the fore. The necessity for freedom of inquiry and free interchange of ideas would become clear. The fact of basic human drive toward a comprehension of natural law and of profound human values might emerge more clearly. And certainly some clues would be offered as to the conditions under which peoples are able to live together cooperatively and in peace rather than at war.

There is clearly much in all of this as to which large unanswered questions still remain. Neither the possible completeness nor the adequacy of the instruction might seem to justify this kind of study. But precisely the opposite conclusion is also tenable. And the provocative and unfinished nature of such an enterprise of inquiry, statement and integration could become a stimulating challenge both to teacher and to student.

Indeed, I remind you that to help meet this very challenge would seem to be one of the important reasons for strengthening the work of the Foundation for Integrated Education. The unity in instruction which would thus be consciously present would be that of the intention of developing persons with a productive and dynamic outlook upon the achieving of one world. What this might mean for the improved motivation of both teachers and students it is hard to overestimate. And what it leaves in the way of unexplored terrain is admittedly prodigious.

Recent writing in the field of cultural anthropology has, moreover, been contributing a point of view here which is immensely suggestive toward that science of man and of his world which we are striving first to outline and second, to elaborate. The approach of this developing social science will be found as rewarding as the technical findings, as a reading of Kluckhohn's *Mirror of Man* will reveal.

This is not the place, nor have I the competence, to relate this approach to the new content of philosophical study for today and tomorrow. Here again, I find the contributions of Northrop, George Sarton, Fritz Kunz, and L. L. Whyte provocative. But as to one point, I feel positive: There is need of the restoration of a philosophical outlook to a place of central significance in college study, if the one-world focus is to be advanced. The problems of ethical relativism and of the nature of some ultimate creative power or God in the world, are examples of those problems which a global approach requires us to cope with in fresh ways.

I realize, however, that one important warning has to be issued. The work of college study has to be of such a nature that it does not constitute an escape into words, romantic concern with distant scenes and peoples, and issues remote from any tangible action by the student. Professor Baker Brownell has wisely cautioned us against what he calls the "principle of delayed function", "of the

** Henry Holt, New York, 1948, pp. 64-65.

social vacuum" and of "emotion segregated from its appropriate action." He believes that the student has to live closely in some realized human community or suffer a sterile sense of being unrelated to ongoing life. There is an undoubted danger here to be guarded against in any and all college instruction.

But there need not necessarily be a basic separation here for the student between *his* world and *one* world. Let him become involved in sending CARE packages, in corresponding with foreign college students, in helping foreign college libraries to be restored to usefulness, in making foreign students feel at home on American campuses, in the multiplying of student and faculty interchanges with other lands, in model world federalist assembly activities, in summer study abroad or the work of rehabilitation of destroyed areas. These are a few of the ways in which abstractions and human concretions can be held together, and warmheartedness can be assured along with hardheadedness. The ways of normal student activity which can teach an attitude above excessive nationalism, which can reveal one's own limited preconceptions and prejudices, and which can make of each campus a small sampling of "one world"—these are as numerous as student and faculty imaginations can conceive.

Finally, a brief word is in order to suggest that all the answers do not have to be in — whether about facts, possibilities or values — in order for education to flower into commitment and action. If there is in education as it goes forward the kind of universal interest and concern I am stressing, one resultant of all this should be an increasing catholicity of sentiment — and a certain sweep of humble faith in the potentialities of the human situation.

In a fascinating recent book by Mrs. Ruth Cranston entitled *World Faith**, she opens her concluding chapter with several paragraphs which I quote as my conclusion:

> "Soon after the end of World War I the father of an American soldier visited the fighting area of Verdun. From the top of the fort dominating the battlefield the earth looked as though it had been plowed by a gigantic upheaval. Three hundred and fifty thousand men had been blown to pieces and their bones mingled with the soil of that spot: Frenchmen, Americans, British, Turks, Indians, Senegalese. Only some fifty thousand could be identified. The bones of the rest were gathered into a great ossuary in a memorial chapel.
>
> "In the trenches underneath, the visitor came upon a crude altar. It was in four parts —and had been erected by the men fighting in that sector: one for the Christian faith, one for the Hindus, one for the Moslems, one for the Jews. It made a profound impression on the beholder. If men could join their altars *after* fighting, in acknowledgment of comradeship and common ideals, why could they not join *before*—to find a way out of their difficulties and declare together: War shall not come to this earth again?
>
> "Through the centuries religion has seemed to be a divisive rather than a uniting element. The various religions of the world have tended to stress disagreements rather than resemblances and to insist that each have a place of unique pre-eminence. But when one turns to the teachings of the great Prophets and Founders themselves, one finds a remarkable identity. In this brief survey, we have seen how extraordinarily alike they are in contrast with the bitter differences of their followers. We have only to read through the various Scriptures to be struck with the similarities on every page."

* Harper & Brothers, New York, 1949.

EMPIRICAL RESEARCH AND MORAL PROBLEMS

Excerpt from the Rockefeller Review for 1948
By Chester I. Barnard, President
Cooper Union Institute

In the more restricted and parochial areas of human behavior the rapid changes introduced by modern technology give rise to many questions as to the meaning and relevancy of ancient moral precepts. What is the bearing of endocrinology or pathology on the moral assessment of human behavior? What is the relevancy or the application of ancient codes of individual behavior to modern corporate action? What should guide the conduct of those who represent others, such representation being a dominant characteristic of Western civilization? How often are supposedly fundamental conflicts of interest considered to be problems of justice and ethics when the root of difficulty is actually ignorance of the real facts?

Until recently the Rockefeller Foundation has given no support to studies in this field primarily on the ground that it was exclusively one for religious and philosophical schools. However, the field of empirical research related to moral problems is now being considered. An examination of the nature of conflicts of ethical systems today seems an appropriate subject of support, and exploratory efforts are being made. The compelling reason back of this is the belief that there can be no satisfactory solution to the problems of our civilization that does not take into account the ideals and spiritual aspirations of men.

A CLARIFICATION OF SOCIAL SCIENCE*

Edward F. Haskell

Summary: Coaction theory as set forth below is a manifestation, in the social and biological sciences, of two processes normal to the development of every science: Natural classification of the subject matter,[1] and mathematization of the language in which it is described.[2] The geometization of coaction vocabulary makes many techniques of pure science apply to critical aspects of social and biological sciences. Thereby two of the major strategies of physical science — theoretical postulation with experimental verification, and progression from simple to complex cases by means of careful analogy — become increasingly available.

Moreover, through the postulate-experiment study of simple cases, whole societies can be encompassed. Through the study of societies as wholes the full sequence of the engineering procedures becomes increasingly available to social technologists. And through the use of these engineering procedures pressing, interrelated problems, such as the basic structures and consequences of autocracy and democracy can be handled with increased direction and assurance.

I

In the latter half of the 19th century, chemistry had become complicated and confused, very much like the social and biological sciences of today. Data on many elements had accumulated without system or order, and chemists were confronted with an ever-increasing mass of material which they had to relate. At this critical point Mendeleyev stated the periodic law, a simplex for the chemical complex.

The central properties of this simplex are important for us to consider, since they are clearly manifest in the integration which is now emerging in the biological and social sciences. Mendeleyev's periodic law stated that, *The properties of the elements are functions of their atomic weights.*[3] In other words, through the classification of this one property (atomic weight) all the major data about the properties of the elements are mobilized into an orderly, meaningful sequence. In consequence, many mistakes previously made were corrected, and new elements were predicted and discovered. At one stroke chemistry was launched on its subsequent enormous development.

It is interesting to note that one year before Mendeleyev devised his table, John Stuart Mill had pronounced the *Philosophical law of natural classification* upon which both the chemical and the new social-scientific simplexes are based. Mill's "Logic"[4] postulated that in order to organize a science of any kind it is necessary to find a single property of the system in question to which all its other major properties are closely linked; that if such a property or criterion is found, its classification will automatically classify knowledge about all the other major properties of the system. Although Mendeleyev was not familiar with Mill's postulate, he carried it out in practice the very next year by his invention of the periodic table. And the results bore out Mill's prognosis to the full.

II

Today we are concerned with the development of a strikingly similar simplex for the sciences of living organisms. During the last fifteen years, several independent inventions of basic parts of what are clearly the same general systemization have occurred in different countries. The first two known to me were made in 1934; one by Moreno in New York, the other by Gause in Moscow. Moreno realized that there are three human coactions — attraction, repulsion and indifference — and that these can be recorded quite systematically in what he called a "sociogram."[5] In the same year the above Soviet biologist at the University of Moscow published studies of yeast cells[6] and the next year of paramecia,[7] micro-plants and micro-animals, in which he showed geometrically that there are three diverse unconscious organismic coactions: increase and decrease of life-activity, and neither one. Some time later (in 1942), through study of experiments by T. H. Langlois, Director of the Ohio Bureau of Fish Administration and his associates,[8] I discovered that the relationship which existed between the few leading powerful individuals and the rest of the membership of the fish society (the weak) were limited to help, harm, and neutrality. And, what is more, that this relationship determined the other major characteristics, the main properties, of the societies. Whatever this relationship, or coaction — whether the two groups were helping each other, hurting each other, or indifferent to each other — all the properties of the societies changed with this one property. Hence, coaction is the criterion for a natural classification of societies.[1]

*Based upon the talks given by E. F. Haskell, chairman of the Organizing Committee, Council for Unified Research, at the Workshops of the Foundation for Integrated Education held at Wellesley College, June 26-30, and the Montecito School for Girls, California, August 21-26, 1949.

When, for instance, the large fish helped the small increase their feeding, the societies were highly successful: their productivity and health were high, distribution of work and of food-consumption were equitable, the societies were well integrated, and so on. However, when the large fish began to drive the small away from the food, or to eat the small (when coaction became negative), the distribution of power and of work began to vary widely, productivity to drop, and the societies to disintegrate. In every case observed, each of the major properties of the society varied specifically with coaction. Such a consistent and significant correlation — between the changes of coaction on the one hand and changes of important properties of societies on the other — seemed to indicate the possibility of their statement as a law, analogous to that of Mendeleyev: *The properties of societies are functions of their coactions.* This law has become the basis of the periodic coaction table (not discussed in this paper), and of the coaction compass illustrated on the cover of this journal.

III

The salient features of Coaction Theory are three: First, in regard to any activity carried on by a society — such as nutrition, reproduction, protection, education — there are diversely powerful individuals which can be separated into two main groups or classes, *the weak and the strong.* Second, as will be shown, these two main classes can have nine, and only nine, qualitatively different relations toward each other — nine coactions — in regard to any one activity (nutrition, reproduction, etc.), several of which coactions have infinite quantitative gradations. And third, the major properties of societies vary with coaction. Far from being arbitrary, these basic features of coaction theory are mathematically and empirically determined, as shown in a forthcoming book. (See below.)

In the course of the seven years since its inception Coaction Theory has been developed and tested incessantly: In order to determine not only all observed, but all possible coactions (as Mendeleyev had determined not only observed but all possible chemical elements), I substituted O for the rate at which any given activity is carried on by each class in the absence of the others, + for all accelerations of this activity in either class *by the other,* and — for decelerations. Cross-tabulation of +, O, and — gives us all possible coactions, as shown in Figure 1.

Weak	—	O	+
S			
t +			
r	−+	O+	++
o O	−O	OO	+O
n			
g −	−−	O−	+−

Figure 1.

In order to determine how many and which of these logically defined terms have recognized conventional counterparts, I then went through representative samples of the literatures about the relations of micro-organisms, of plants, of animals, and of men. Most of the conventional terms correspond: Let us take, for instance, the term *predation.* This word signifies that the weak (prey) are damaged while the strong (predators) benefit at their expense, −+. The term *parasitism* on the other hand signifies that the weak (the parasites) are benefited at the expense of the strong (the host) +−. (By convention, as may be noted in this journal's cover design, the left-hand sign refers to the effect which the coaction has upon the weak, the right-hand sign to its effect upon the strong). In the case of *neutrality,* the fact that neither one is helped or hindered is indicated by OO. However, the term *commensalism,* as used in the ecological literature, denotes several coactions. (In fact, most of the conventional coaction terms are unrigorously defined, and therefore used more or less ambiguously. This is one of the chief reasons for the long arrest in the development of systematic social and ecological theory). Yet the most widely accepted designations of *commensalism* are coactions in which the weak benefit and the strong are unaffected, +O. The term *symbiosis* (living together), of course signifies mutual aid, ++. And the oposite, (−−), which has no conventional counterpart, would by analogy be "dying together," *synnecrosis.* The remaining geometrically discovered coactions are also not named in the literature. In consultation with Mr. J. M. Conant of Columbia University's Greek and Latin Department they have therefore been named as follows: The opposite of the above *commensalism, faute de mieux,* may be called *amensalism* −O. The O+ coaction may be called *allotrophy,* (feeding the other); and its opposite, O− (starving the other) *allolimy.* The linguistic purity, clarity, and brevity of these terms as compared with their possible alternatives have, of course, been duly weighed and evaluated.

IV

The next step toward clarified (toward systematic and exact) science, once the basic terms have been rigorously defined, is to make possible as much refinement of the vocabulary as the data permit and require. To this end I transformed the above cross-table into the dial portrayed on the cover of this journal. This dial is simply a

special case of the rectangular or Cartesian plane coordinate system just as are, of course, the dials of the clock and of the compass. Hence I have called the social-scientific dial the *coaction compass.*

The vocabularies of space and time are precise and practical because their terms are defined geometrically. *North* is defined as situated on a line exactly opposite *south, east* and *west* as opposite each other on a line drawn at right angles thereto. As a result of this definition any desired number of precise inter-gradations may be added to these four basic terms. (Nowadays degrees, minutes, seconds, etc. are usually substituted for most of the old terms such as North by North-Northwest.) Similarly with our time vocabulary: *12 o'clock* is defined as situated on a line opposite *6, 9* and *3 o'clock* as opposite each other on a line drawn at right angles thereto. To these four basic terms, in consequence of this definition, can be added any desired number of precise inter-gradations. Thus our space and time vocabularies are exact, and can be as much refined as we need to make them.

Just see the effect of applying this principle to the basic terms of social science: We formerly had a single term, *symbiosis* (or cooperation) to designate all possible coactions in the upper right-hand quadrant of the coaction compass, *parasitism* all those in the lower right-hand quadrant, *predation* all those in the upper left-hand quadrant, and no recognized term for those in the lower left-hand quadrant, except for Gause and Witt, who used the term *mutual depression.* Now, however, we can use the vocabulary of circles — degrees, minutes, seconds, etc. — to designate each of the myriad kinds of symbiosis, of parasitism, of predation, and of synnecrosis occurring at various places and times. And this is essential for diagnosing any society's condition and its direction of change.

The same holds for the quantity, the intensity or rate, of coaction. It too can now be stated with any desired precision: Take the coaction described on the cover. An arrow, called a *coaction vector,* points to a specific place on the compass; to *commensalism* (+O). And it has a specific length, measured off on the diagonal scale by way of the guide circle. (This scale measures *per cent* changes of the average performance of the whole society; of the weak and strong together). *In this way the vector's position gives us the exact kind of coaction; its length, the precise intensity or rate of coaction.**

It is very important to begin with unimportant cases (as shown below). Hence these particular two figures were determined as follows: At the University of Chicago, Joel C. Welty built some extremely simple water mazes.[10] Using hundreds of individuals he determined the average time it took untrained goldfish to pass through a gateway in a screen to another chamber where food was served. He found in his Experiment 8 that the average speed of a group of three untrained fish (the weak) during the first four trials is 62 minutes. (Hence O for the weak is 62). The O point for the one trained fish (the strong) during the first four trials was not expressly determined. We know, however, that it was slightly less than 18 minutes. (Thus O for the strong is about 18.) When a trained fish swam the maze with three untrained ones the group's average speed during the first four trials was 18 minutes, a speed increase for the weak of about 70%. The speed of the strong, however, was, for practical purposes unaffected (O). This coaction's quality is *commensalism* +O or, in terms of the circumference scale, O°. Its quantity or rate is the average maze-swimming rate of the whole society.* This society is thus defined by the two quantities, +52.5% and O°.

The radial scale can be calibrated to show any other velocity such as, say, grams eaten or weight increased per day, individuals born or money earned per year. In all these cases the vector's length increases with speed. And it should be noted especially clearly that a one-purpose society such as that of the goldfish, whose members only ate together, a so-called *mono-telic* society (from the Greek *telos,* the end or goal) is defined by a single coaction vector. A *di-telic* society, however — one carrying on, say, nutrition and reproduction — requires two vectors for its initial description; and a *poly-telic* society, several coaction vectors.

At any given time the totality of the speeds and directions of a given society's vectors constitutes its *strategic stature,* as this term is defined by Sherman Kent.[11] While on paper the calculation of strategic stature appears to be a purely mathematical problem, however, it is in actuality a complex empirical problem as well: Each vector (describing each activity or tel) has a different value in a society's strategic stature; one, moreover, which changes with circumstances, relative to the value of the other vectors. Years will elapse, in spite of this clarification of social science, before scientists will be able to ascertain the precise strategic statures of complex societies, and to predict their changes accurately. But we are on our way now, with assurance.

*In the terms of analytic geometry the coaction vector is the *radius vector* which is defined by the polar coordinates r and theta, where r is the average rate or quantity of coaction of the whole society (read off in percentages on the radial scale) and theta is the quality or kind of coaction (read off in degrees the circumference).[9]

*To get this we add the rates of the weak (3 times 70%) to that of the strong (1 times 0%), which together is 210; and divide this by the society's population (4), which gives us 52.5%. (The guide circle, starting at the coaction vector's point, shows its position on the radial scale.)

The history of a society is described by a line drawn by the coaction vector's point as it moves in time. Similarly, the prediction or *prognosis* of the society's postulated coming changes is drawn by the vector's tip as it moves in postulated time. Comparison of these two highly meaningful lines — that of prognosis and that of subsequent history or *epignosis* — is an instance of the classical scientific method of postulation and experimental verification. Hence our feeling of assurance.

V

You may have wondered why I selected so unimportant a case as goldfish in a maze for my illustration. I did so in part because it is unimportant enough for us not to care at all what it shows, and hence for us to accept its results with equanimity. Also, because it is simple enough to be understood quite completely and with ease. (The biologists' objection to analogy is partially obviated by our geometrization of vocabulary, as shown below.)

The strategy of starting with such unimportant and simple cases as this, studying them as wholes, and proceeding step-wise to complex and important human societies is, I think, a good deal more promising than is the past and present strategy of social science. This was, to start with the most important and complex cases, industrial societies and, finding them beyond the possibility of comprehension (by that method), to fragment the study into pseudo-disciplines; into *economics, political science,* and *sociology.*

This strategy is bad for two reasons; one scientific, the other technological. It is scientifically incorrect because it breaks the chains of causality in our minds. It prevents anything like full understanding of the political consequences of economic action, of the economic causes and mental consequences of political action, and so forth. Moreover, since no one studies the whole this fragmentation produces a mass of over-lapping logocentrisms; a maze of world-views in which each different ology — economic, sociological, political-scientific — is over-emphasized. In studying a social situation each of the various kinds of specialists thus produced must and does tend to over-estimate the effect, upon the situation in hand, of forces especially studied in his "discipline" and to underestimate the effects upon it of forces in other "fields." For the duration of this strategy the enlightening method of theoretical postulation and experimental verification is impracticable. The present method, moreover, has produced a mental structure in social science not wholly unlike that of the Tower of Babel. And continuation of this strategy assures its steady intensification.*

*History and anthropology do study societies whole. Therefore these disciplines are strategic censors about which the sciences of human societies can be mobilized. Methods for doing this are demonstrated in two chapters of "An Introduction to Unified Science." (See below.)

The present strategy of social science is technologically bad because it prevents us from applying the universal engineering procedures to social processes. Every form of engineering consists at bottom of six steps: (1) *general examination* of the situation; (2) *diagnosis,* that is, postulation of the independent variable, the "key hole" of the problem, the strategic place where some new variable could be introduced; (3) *prescription,* postulation of the "key" or course of action to be applied to the independent variable; (4) *prognosis,* clear postulation of the results expected to ensue from application of the prescription; (5) *execution,* or application of the prescription in actual practice; (6) *epignosis,* review of the process as it actually occurred, comparison of it with the prognosis, and determination of the degrees of correspondence, the degree of what is called *success or failure.* (This sixth engineering procedure often coincides with part of a new general examination, the first procedure of a new sequence). This procedure-sequence is used in all engineering projects; in the physical domains, in farming, in medicine, and as a matter of fact, in all human work including, as shown below, the basic procedures of science itself. However, as long as we pursue the strategy of beginning with the most complex case and confining the studies of each student to one fragment thereof no general examination occurs, by definition, let alone correct diagnosis or prescription. Our practice must therefore be confined to traditional rules-of-thumb. This pre-technological procedure in social affairs is the salient characteristic and weakest link of Western ideology. (We shall come to Eastern or Marxist ideology a little later.)

VI

The emergence of natural classification in the social and biological domains now makes it possible to initiate the scientific study and technological control of our vastly complex world situation in the effective way practiced by physical scientists; the method of theoretical postulation (a form of prognosis) and experimental verification (a form of execution), followed of course by epignosis. Take, for instance, the series of experiments which is being conducted by Dr. Paul Burkholder at Yale, to test a set of theoretical postulates which I formulated at his suggestion. Instead of trying to work solely with the incredible complexities of the vast web of life outdoors, as ecologists have so long been doing, he is devising simple, manageable, and precise coaction "circuits" in constant temperature flasks. These "circuits" are composed of micro-plants, micro-herbivores, micro-carnivores, and bacteria. Theoretically—according to my postulates—measurable "crests" and "troughs" of energy can be sent around these "circuits." "Dams"

can be built, creating energy "droughts"; then broken to release "flash floods" of energy. As a result of coaction theory it should now be possible to calculate the strategic statures of various species and individuals (for instance, the trained goldfish), and to check these calculations accurately by experiments.

So also the strategic statures of societies. Compare, as an example of two typical social structures, the *food chain* with the *food circuit*: Theoretically, all things being equal, an energy chain should have less energy than an energy circuit, since the circuit re-introduces as energy-input part of that which the chain simply wastes. (The energy-circuit principle is so abundantly illustrated by certain internal combustion engines, which process and then re-use their own exhaust, that biological experiments serve mainly to verify the analogy to simple societies.) Their prime importance lies a step further, in verifying the analgous social structures called *chains-of-command* and *circuits-of-cooperation*. (These are not merely energy, but primarily organization structures.) The chain transmits organization "downward" only, while the circuit transmits it both ways: "around." In the circuit-of-cooperation many "bottom" links, say buck privates in an army, have opportunities to talk freely and honestly with the "top" links, the top generals. Thus they process and reintroduce (into the generals' understanding) the organization which the chain-of-command simply wastes. It would seem — *a priori,* in advance of field and experimental study — that the basic structure of autocracy is the chain - of - command; that of democracy, the circuit-of-cooperation. To the extent to which the popular election and popular attention balance and reciprocate the guidance which government officials,[12] heads of industries,[13,14] leaders of armies,[15] etc., give to the people, to that extent—if my hypothesis is borne out by experiment—these organizations are circuits-of-cooperation, are democratic. And, according to this hypothesis, such institutions will out-produce, out-fight, and out-last chain-of-command organizations which are identical with them in every other way. This hypothesis has been borne out experimentally by Kurt Lewin and his students.[16] More experimentation, however, is urgently needed.

The effective method of theoretical postulation and experimental verification can first be applied to simple cases and then to progressively more complex cases.* And they can be applied to unimportant, to emotionally neutral cases first, and the results be so firmly established that emotional distortions in important cases later on will be much milder than otherwise. For instance, we find out repeatedly and in clear detail that many plants and micro-organisms practice birth control; that birth control is by no means just a human invention. Also, that where control is prevented and overpopulation results, the "Horsemen of the Apocalypse" (allolimy O–, amensalism–O, cannibalism (a form of predation –+), or synnecrosis ––) follow. We show how and why this is *and must be* so. Then we turn to human history with clearer understanding, with enthusiasm and intent to act. School ceases to be academic!

*The chief objection raised by biologists to this strategy is, that it involves the drawing of analogies. This objection, however, is partly overcome by the geometrization of our vocabulary, since in geometry the validity of analogy is axiomatic.[17] However, the wholesome fear of naive analogies, which could be drawn in spite of the regularization of terms, can be counteracted in no other way than by conscientious consultation of the literature and specialists on each of the processes between which analogies are drawn.

This is not just a prognosis of what theoretically should happen if social science were clarified. I have thoroughly practiced (executed) these clarification procedures in undergraduate as well as graduate classes—even before a primary-school audience—and speak here from experience; I report an epignosis.

VII

All theories of world importance, theories which affect world policies as well as scientific thought, are basically co-action theories. Some—like the Darwinian theory of organism change and the Marxist theory of society change—single out, stress, and generalize negative coactions ("struggle") into pictures of the whole world; some, like Kropotkin's theory, stress neutral and positive coactions; and some, like the second law of thermo-dynamics, assert the equality of coactions, and therefore (since azoic systems are the most numerous) hold the whole universe to be losing organization.[18] Let us see how these theories may be judged in the light of more conscious and complete coaction theory.

Take first the physical theory of general "running down" in the universe:[18] Compare the relative power of negative and positive coactions in living organisms. Figure 2, based upon Einstein and Infeld,[19] shows the relative power of the nine coactions in terms of the lengths of their respective vector patterns. The three positive coactions are, *a priori,* distinctly more powerful than neutrality and the negative coactions. Now, according to Guye,[20] the selection of so-called *fluctuations* (of positive coactions), after the manner of Maxwell's demon, would theoretically be made possible by breaking space up into minute compartments. Precisely this is achieved by the cell structure of all living organisms (except certain viruses). And, according to Butler,[21] selection of positive coactions—which physicists call *local decreases of entropy*)—has been verified experimentally with yeast cells. If coaction theory proves correct these findings will presently be demonstrated mor many more living organisms.

What is the connection between this physical theory and biological theory? Take Darwin's slogan, *survival of the fittest.* According to co-action theory it will transpire that since positive coactions are the more powerful, it is (on the whole) those individuals and societies which display the most positive coactions which are the most fit and the surest to survive. (Such, in fact, is Allee's tentative conclusion).[22]

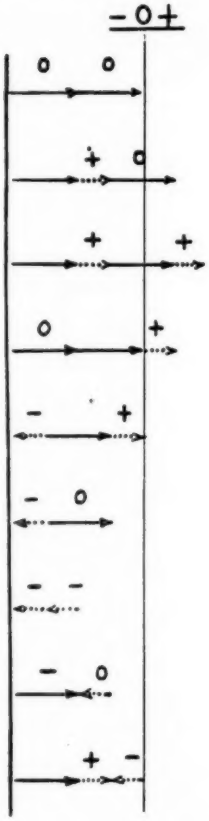


Figure 2.[19]

A geometric representation of this view is achieved by projecting the vector patterns of Figure 2 into the Cartesian coordinate system, as shown in Figure 3. The faint inner circle was produced by rotating the OO vector pattern, Figure 2. Its area corresponds to the state of inert or static systems *if such could exist.* The dotted spheroid, however, corresponds to all other possible systems. Figure 3.

In competition for survival those systems whose coactions extend outside the inner circle are bound to displace those inside. Consequently progressive evolution is bound to proceed most powerfully within the quadrant of symbiosis; degenerative evolution (leading to over-specialization and extinction) most rapidly within the quadrant of synnecrosis.

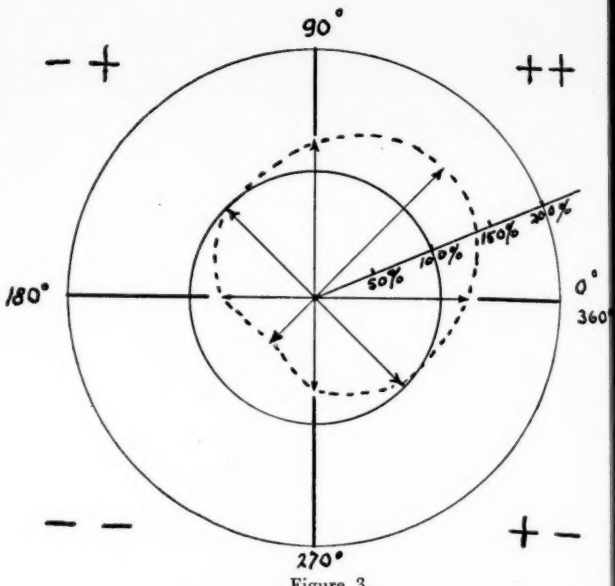


Figure 3.

As for the other two quadrants, the inner circle of Figure 3 distinguishes negative from positive co-action, and possibly also increasing entropy from decreasing entropy. (These sets of terms may, in fact, turn out to be synonymous.) Thereby this circle clarifies the meaning of two terms which have heretofore been as ambiguous as they are important: *predation* and *parasitism.* In the light of geometric analysis, each of these words clearly turns out to designate not only negative, but also positive coactions! This analysis is experimentally verifiable: Imagine, for instance, that the trained goldfish of Welty's experiment had been slowed down in the process of teaching, as human parents, teachers, etc., so commonly are. At a slowing down of, say, 25% for the strong, the society's coaction vector would have pointed to roughly 340°, well inside the parasitism quadrant. None the less the coaction would be clearly positive, as would be seen by the only slightly reduced length of the co-action vector, q.e.d. Clarified understanding of parasitism and predation, and objective analysis of concrete cases may spare us no small amount of incorrect political oratory, along with many negative economic, political, and military coactions.

Darwin's slogan, *the survival of the fittest,* remains. But the fittest on the whole turn out to be, as Kropotkin affirmed, not predators but co-operators; those displaying the most positive coactions; and that, internally as well as externally. The integration of Darwin's and Kropotkin's theories, and of these with the theory of thermo-dynamics are two probable effects of coaction theory upon biological and physical sciences.

Now let us briefly show one of its effects upon a related portion of what passes (in a large area of the world) as social science; upon Marxist theory. "All recorded history," says the *Communist*

Manifesto, "is the history of class struggle." We turn to Figure 3 and see that almost any coaction outside the quadrant of symbiosis might correctly be called "struggle." We note, however, that neutrality OO, commensalism +O, symbiosis ++, and allotrophy O+ certainly cannot, and hence that by no means all history consists of struggle. And we postulate with mathematical certainy that Marxist theory must have emerged from a country displaying markedly negative coactions; that it must seem true and be accepted wherever such coactions are unusually strong, and that it must fail to be believed and fail to take hold wherever cooperation strongly predominates. All these postulates are fully borne out in the field.*

VIII

The above was a brief demonstration of the integrative effect of coaction theory in several sciences. Now I shall try to demonstrate its technological value.

Take the crucially important problem of prescribing a course of action for preventing and curing Communism in America: We have just made a brief *examination* of Marxist theory. On its basis we can now *diagnose* its salient characteristic as incorrect generalization of negative coactions into a picture of totality. Our *prescription,* now, is not *intensification of class struggle,* as many advocate, thereby spreading the very disease they expect to curb. On the contrary, it is the systematic transformation, within this country, of class struggle into class cooperation. (How this may be done in practice is discussed elsewhere: e.g.[13]; and in [14], pp. 232-7). Our *prognosis* follows from the biological theory above: People who (acting on the basis of a wholly negative theory) by and large coact negatively, must (all things being equal) lose out in competition with people whose strategy is in accord with, or based upon, the totality of Coaction Theory, even in its early form.

This prescription has been executed consistently in Switzerland,[14] and is now being applied in an as yet sporadic way in the United States.[13] And, as a general thing, in both places the results and *epignosis* have borne out the prognosis: low productivity, tendencies to disintegrate, and the other major properties of negatively coacting society have changed with coaction.

The effect of our clarification on political theory and social practice will increasingly be, to change our present ineffective rule-of-thumb procedures into technological operations, into predictable and attainable improvements of life; to eliminate Western as well as Eastern ideologies.

*A detailed analysis of both Marxist and Western theory and practice, an extensive presentation of coaction theory, and coaction studies in many fields by well-known scientists and technologists are to appear in 1950 as a book edited by the author, entitled, "An Introduction to Unified Science." (Publisher indefinite.)

IX

I would be laboring the self-evident were I to stress the fact that this prescription — to change negative into positive coactions — has been laid down by every one of the half dozen or so great religious leaders, and most especially by Jesus. Coaction theory restates the part of their teachings which they have in common, in clear and modern terms based both upon careful experiments and pure mathematics; restates them in a manner understandable to the realistic and practical; to scientists, engineers, and modern men on the street. It breaks down the wall and fills in the chasm which used to separate science from the basic aspect of that which was once excluded therefrom as "religion."[23]

Suggestion: *Re-read the Summary.*

REFERENCES

1. Haskell, E. F., 1947. A Natural Classification of Societies *Transactions of the New York Academy of Sciences,* March, Ser. II, Vol. 9, No. 5, pp. 186-196.
2. Haskell, E. F., 1940. Mathematical Systematization of "Environment," "Organism," and "Habitat," p. 4. *Ecology,* Vol. 21, No. 1:1-16, January.
3. Posin, Daniel Q., 1948. *Mendeleyev — The Story of a Great Scientist,* (Chapter XX). McGraw-Hill, New York, Toronto.
4. Mill, John S., 1868. *A System of Logic — Ratiocinative and Inductive,* (Eighth ed., 1912:467). Longmans, Green, London, New York.
5. Moreno, J. L., 1934. *Who Shall Survive?* Nervous and Mental Diseases Publications, Washington, D. C.
6. Gause, G. F., 1934. *The Struggle for Existence.* Williams and Wilkins, Baltimore.
7. Gause, G. F., and Witt, A. A., 1935. *The Behavior of Mixed Populations and the Problem of Natural Selection, The American Naturalist,* pp. 569-609.
8. Langlois, J. H., 1936. A Study of Small-Mouth Bass, Micropterus dolomiou (Lacepede), in Rearing Ponds in Ohio, *Biological Survey,* 6 (4):33. Ohio State University Studies.
9. Poor, V. C., 1934. *Analytical Geometry,* pp. 6, 27. Wiley and Sons, New York; Chapman and Hall, London.
10. Welty, Joel C., 1934. "Experiments in Group Behavior of Fishes," *Physiological Zoology,* 7:85-128.
11. Kent, Sherman, 1949. *Strategic Intelligence.* Princeton University Press.
12. Smith, T. R. T., and Morris, J. A., 1949. *"Dear Mr. President" — the Story of Fifty Years in the White House Mail Room.* Julian Messner, New York.
13. McCormick, Charles P., 1949. *The Power of People.* Harpers, New York.
14. By 65 Authors, 1948. *Gottlieb Duttweiler, dem Sechzigjaehrigen, Dank und Kritik.* Speer Verlag, Zurich.
15. Eisenhower, Dwight D., 1948. *Crusade in Europe.* Doubleday, New York.
16. Lewin, Kurt, 1948. *Resolving Social Conflicts.* Harpers, New York.
17. Polya, G., 1945. *How To Solve It — a New Aspect of Mathematical Method,* pp. 37-46. Princeton University Press.
18. Eddington, A. S., 1929. *The Nature of the Physical World.* Cambridge University Press, London.
19. Einstein, A., and Infeld, L., 1938. *The Evolution of Physics,* p. 18. Simon and Schuster, New York.
20. Guye, Charles Eugene, 1925. *Physico-Chemical Evolution.* E. P. Dutton, New York.
21. Butler, J. A. V., 1946. Life and the Second Law of Thermo-Dynamics, *Nature,* 158:153-4, August 3.
22. Allee, W. C., 1931, *Animal Aggregations,* Chap. XX, University of Chicago Press.
23. Haskell, E. F., 1942. The Religious Force of Unified Science, The *Scientific Monthly,* June.

THE DRAMATIC FALLACY

By WELLER EMBLER

Department of Humanities
The Cooper Union

From earliest childhood we have ever been looking forward to something — some far-off divine event — to Christmas morning, or the wedding day, the end of an endeavor, a holiday, fame among men, or the coming of death. And how often is fulfillment disenchanting, the end of something. The angels do not look forward to their immortality, said Emerson's Ellen Tucker. In the quiet of the night we ask ourselves where we are going. And none knows. But in the morning, habit and faith urge us to take up the burden and to sally forth into the future. It is the pursuit of destination which covers the earth with sound and fury, and if we invite ourselves to speak truthfully, we must say that the struggle also is beguiling.

The structure of our lives seems always to be formed out of struggle resolving itself, of the will meeting new obstacles and surmounting them or being defeated. The culture pattern of modern experience is dramatic, like a play by Ibsen. When Ferdinand Brunetière gave systematic expression to his theories of the drama in his *La Loi du théâtre* (1894), he was thinking of drama in the theatre, as his title suggests. But unconsciously he was describing the cultural history of his age. What we ask of the theatre, says Brunetière, "is the spectacle of a *will* striving towards a goal, and conscious of the means which it employs." Therefore, in defining the drama one must take into account first "the particular obstacle against which the will struggles." If the obstacle is inevitably insurmountable and the protagonist is defeated in his efforts to overcome it, the drama is a tragedy; if the obstacle is of a serious nature but, providing the right line of action is taken, not insurmountable, the spectacle is a serious (probably a social) drama; if the conditions of the struggle are equal and the obstacle ultimately not difficult to surmount, the drama is a comedy; whereas if the obstacle is itself absurd, the drama is a farce.

Brunetière is analyzing not only an art form but all aspects of human experience in the nineteenth century; and because the belief in conflict is now deeply entrenched the world over, his law profits perhaps even better as an analysis of the cultural life of the twentieth century. Since the framework of our social life is based on the principle of conflict, the drama in its very structure and form holds the mirror up to nature, and in turn serves as a model for experience. Modern man has been educated and continues to educate himself to look at his world as though it were a theatre in which is being played out, according to Brunetière's law, the drama of life. It is this attitude toward experience that I call the dramatic fallacy. In the last two hundred years, the dramatic fallacy has established itself so firmly as a habit of mind that we think of it as the only possible design for living. The western world has devised philosophies and sciences which have explained with irrefutable logic and with reference to "irreducible facts" that the events of human experience follow a pattern based on the principles of conflict and resolution forever playing themselves out.

The classic expression of struggle is the *Prometheus Bound* of Aeschylus. In the Promethean legend was born the philosophy of conflict, of endless antagonism, of ceaseless war upon the enemy. Prometheus represents the eternal rebel; and the Promethean agony is the unrelieved agony of eternal conflict between powerful forces. Prometheus is as immortal as his enemies. He "must struggle through countless years of time." His consolation lies in his foreknowledge of the end of tyranny and strife, the final curtain toward which, according to the dramatic interpretation of life, the whole creation moves.

It was during the late eighteenth century and in the immediately following romantic movement that the dramatic fallacy in modern thought assumed a clearly outlined form. The essential characteristic of romanticism was revolt, passionate revolt directed against a wrongheaded world in which an abstract evil plays the insuperable obstacle. Although the contemporary world has pursued political ideals of a nature different for the most part from those advocated by the nineteenth-century romantics, it has nevertheless retained their mood of impassioned struggle. And whether the world has pronounced them good or evil, the renowned warriors of the West, from Napoleon to Hitler, have been essentially romantic idealists engaged in eternal conflict with the "enemy."

It is not without significance that Shelley should have chosen the Promethean story for his most ambitious poetical drama. When Shelley took up the myth of Prometheus, he restated for nineteenth-century use the ancient concept of never-ending antagonism. The romantic faith in the good fight, that it will of necessity, as Shelley insisted, lead to the bright future and the return of the golden years, has inspired rebellion in the hearts of countless reformers, even though the great rebels have not always been by everyone considered benefactors of mankind. In her note to the *Prometheus Unbound,* Mrs. Shelley says, "Shelley believed that mankind had only to will that there should be no evil, and there would be

none." Mrs. Shelley continues: "And the subject he loved best to dwell on was the image of One warring with the Evil Principle." The spectacle of the romantic "will" striving, longing, making bold its determination to strike at the enemy — this is the entrancing vision that lures men into actions. Prometheus' martyrdom is full formal realization of the meaning in human action. It is the peak of the dramatic curve, the moment toward which all rebellion aspires, the protest made once and for all, the climax of all life's willing.

If we examine seriatim the major beliefs which we have today inherited from the nineteenth century, we shall see that it is no wonder our view of life should be based on the theory of dramatic conflict. When, for instance, we ask what makes the "world go around," we still — in spite of modern physics — instinctively turn to Newtonian mechanics for an answer. And in Newton we find the finest mathematical-aesthetic expression of the theory of opposition. In mechanics, in government, in matter each particle is mutually repellent. It is through the struggle of the parts that harmony is created.

> If a body in translation is not acted upon by any external force, its linear momentum remains constant.

This is the first and great law, and upon it hang many if not all the commandments for mechanical (and human) behavior. It seems that all bodies have to be acted upon precisely so that their linear momentum will not remain constant. Forces have pulled and masses have resisted. The experience of gravity is everywhere in conflict with matter, and matter has struggled in unyielding opposition to gravity. (The very notion of entropy, for example, could not have arisen to plague the complacence of the nineteenth century, except it were based on the concept of friction, of a universe wearing itself out in endless and unprofitable conflict — in the effort, as it were, to reach "the end," zero equilibrium.)

The nineteenth century made ready use of Newtonian mechanics in very nearly all branches of human thought — in international diplomacy, known as the balance of power; in political theory as the "equilibrium of neutralized forces," or in what is often spoken of as "intelligent compromise"; in economic theory as free competition; in the applied sciences as the mechanics of forces; in the fine arts as counterpost, counterpoint, and conflict.* All things exist, it seems, by virtue of the organization of forces intimately opposed. There have been, on occasions, some notable disagreements with this point of view, but on the whole the theory of opposition still prevails, and Newton's laws of motion are strong supports to the dramatic fallacy in contemporary life.

In 1798 Thomas Malthus published his *Essay on Population.* The effect which the Malthusian theory has had on modern thought is more far reaching, perhaps, than any other social idea in the history of the western world since the Reformation. With what looks like incontrovertible common sense, the Malthusian theory categorically denies the humanitarian principle of the perfectibility of man and gives sanction to the notion of eternal struggle, vice, and misery. "Population when unchecked," said Malthus, "increases in a geometrical ratio. Subsistence only increases in an arithmetrical ratio." This is the celebrated law, and the words have become as magic as ritual.

Only as recently as September 14, 1948, the professional respects of science were paid to the Malthusian doctrine at a symposium of scientists meeting in Washington, D. C., where, according to the report given in the New York *Times,* it was agreed that overpopulation and the dwindling of natural resources, "both of which are the direct consequences of progress in science and technology," were darkening the "outlook for the human race in the next century." The earth is "just not big enough to support its human population at its present rate of increase," and "freedom from want is changing from a hope to a pipe dream."

In his *Essay on Population* Malthus was concerned to give support to classical economic theory and to demonstrate, for example, the law that inevitably the wages of labor will be in inverse proportion to the supply of labor. But the larger inference of struggle for survival has long outlived the specific law of wages. The Malthusian theory is designed to prove that there is only just so much of anything to be had, that this quantity is not enough to go around, and that therefore people are going to fight for lions' shares of what there is. The struggle for existence, said Darwin, "is the doctrine of Malthus applied with manifold force to the whole animal and vegetable kingdoms."

Our historical sense has nurtured great historians, and our political sense has found them very useful. History is seen as the drama of the struggle

*Some years ago, a close acquaintance of mine, a teacher of painting and a forward-looking critic of the fine arts, was invited to lecture on art before a group of the Society of Friends. Just before her lecture she said to me that her audience was not going to approve of what she would say, for she intended to point out that *without the element of conflict there can be no art of any kind.* Although her audience did not agree with what she said, they quite expected to have this point of view presented, for it was then very common. For instance, the following is taken from a textbook in applied aesthetics, published in 1940: "Conflict is another way of getting emphasis. Wherever it is found, conflict is interesting; we pay no attention to two cocks or two birds until they get into a fight, then we are all eyes. In music it may be conflict of rhythms, of melodies, or of instruments. . . . Counterpoint is the most exciting kind of music to listen to, because one melody is fighting against another. It is, however, in literature that we are most conscious of conflict." (Dudley and Faricy, *The Humanities,* McGraw-Hill Book Company, Inc., New York, 1940, p. 335.) It cannot be denied that a great literature and art have been based on the theory of conflict; but it would be an immensely worthy work to inquire into the possibilities of an aesthetic based on the theory of cooperation.

for power. The world moves, according to the nineteenth-century philosophy of history, with a directional energy, with purpose and with progress toward some ultimate condition. Observe, for instance, how closely the Hegelian dialectic resembles the dramatic structure. The thesis is the protagonist, the antithesis the antagonist. Their conflict makes the plot of history, and the tragic resolution of their struggle of wills is the synthesis. The nineteenth century found Hegel's philosophy most attractive, for it gave philosophical support to the ideal of progress through struggle; and the twentieth century has accepted the Hegelian philosophy as wisdom divinely revealed.

Having lived through the period of the French Revolution, the Napoleonic wars, and the setting up of the Prussian State, Hegel was in a historical position advantageous to seeing world history as a movement of wills seeking to realize themselves in a pattern. Although history presents us with the spectacle of universal corruption and misery, there is still, says Hegel, a reason for the unhappy picture. The goal of history, the aim of all this dramatic movement, is a State which is a moral whole — the ideal unity become real. The aim of history is moral equilibrium wherein the movement of the dialectic is stilled for want of opposition.

Hegel taught us to think of history as a conspiracy of forces dedicated to moving with single intent to the awesome climax and stopping there. Oswald Spengler was less optimistic and taught us that history is a scheme of ups and downs, of growth but also of decay. Mankind in the western world appears to have sat at the feet of each philosopher and without conspicuous success to have followed both. In any event, all history, so we are led to believe, is not only a series of ups and downs but is also a preparation for some incredible crisis.

Each of us thinks of his striving as a preparation for something, for a third act for which each waits with varying degrees of intensity. We look ever forward to the climax of our careers, to the peak, howsoever it may be measured, in power, in abundance of material things, in self-mastery. But after our middle years there is a falling off, a descent. And the denouement is an attempt to put things to rights in a final synthesis. The curve of life is theatrical. Even our calendar calls for a rising action *and* a falling action, as for instance, the week, which from Monday through Friday is a kind of slow boil, until Saturday night, which serves as a drunken climax. Sunday is the dramatic decline. Is not any day itself a kind of dramatic campaign, a going forth to meet the enemy, a struggle, and a return? We are all playboys, children in a play which is moving, as we suppose, fatefully to some end, for Hegel toward a design which shall be ever-lasting cosmos, for Spengler toward death.

The dramatic fallacy as applied to history has also nourished our love of crisis. Nervous tension is the drug of modern man. One devotes the afternoon to the international crisis. One awakens to ask, "What new crises have developed?" Our energy is spent explosively at the moment of crisis, the ecstatic moment toward which we are always yearning, like puppets waiting to be galvanized. It is as though the whole world believes the world's a stage and that some fatal mechanical law has to be obeyed compulsively on purpose to a universal catharsis.

Each day shall find us nearer, said Longfellow — and indeed it does. It is a coming nearer to the end that intrigues the western world. Our willing is a desperate willing, a frantic, hysterical driving toward the end. We are obsessed with the idea of arriving. The dramatic fallacy inherent in this obsession is pointed out with rare insight by E. M. Forster in his pamphlet, *Nordic Twilight* (1940).

> Incidentally (and I think this has been part of her malady) [Germany] had a deeper sense than ourselves of the Tragic in life. Seriously minded, she felt that there must lie ahead for herself or for someone an irreparable disaster. That was the mentality of Wagner, and perhaps the present war may be considered as a scene (we do not yet know which) out of the *Nibelung's Ring*. I listen to Wagner today with unchanged admiration and increasing anxiety. Here is a world in which someone must come to grief, and with the maximum of orchestration and scenery. The hero slays or is slain, Hunding kills Siegmund, Siegfried kills the dragon, Hagen Siegfried, Brunnhilde leaps into the flames and brings down the Halls of Earth and Heaven. The tragic view of the universe can be noble and elevating, but it is a dangerous guide to daily conduct, and it may harden into a stupid barbarism, which smashes at problems instead of disentangling them.*

But let us return to the nineteenth-century expressions of the dramatic fallacy. *The Wealth of Nations* was published in 1776 and *The Origin of Species* was published in 1859. Between these two dates, William Wadsworth wrote "Lines Written In Early Spring" (1798), a poem in which he celebrates the peaceful in nature and criticizes the angry antagonism among men, that they will not learn from nature.

> Through primrose tufts, in that sweet bower,
> The periwinkle trailed its wreaths;
> And 'tis my faith that every flower
> Enjoys the air it breathes.

[1]Quoted in *E. M. Forster* by Lionel Trilling.

The birds around me hopped and played,
Their thoughts I cannot measure—
But the least motion which they made,
It seemed a thrill of pleasure.
The budding twigs spread out their fan
To catch the breezy air;
And I must think, do all I can,
That there was pleasure there.
If this belief from heaven be sent,
If such be Nature's holy plan
Have I not reason to lament
What man has made of man?

This is a quiet, lyric philosophy, one which an age devoted to the dramatic could hardly have been expected to accept. Instead, it is the theory of natural selection which has held a foremost place in the history of modern thought, and *The Origin of Species* still serves to support and give sanction to the philosophy of against. But it was not Darwin, nor Huxley, nor Spencer alone who promoted the theory of struggle and consequent evolution. It was the nineteenth-century popular belief in progress (ascension from something lower to something higher) which nourished the idea. And it was the nineteenth-century theory of free enterprise which to all appearances proved it true. And now in the twentieth century, despite all evidence to the contrary, we still believe that only out of conflict are the fittest chosen.

If Darwin had not written *The Origin of Species,* someone else would have written it. The theory of natural selection was in the air. The belief that the victor of the struggle would be the "best" by virtue of his survival, the belief that history and industry and empire go ever forward was very much in the air. And since the church could not contribute solid sanction to progress through strife, science had to do it. *The Origin of Species* is a great work of the scientific imagination, but it describes experience from the nineteenth-century point of view.

Had I been alive and reading books in 1850, I might have read Herbert Spencer's *Social Statics.* Moreover, the forcefulness of Spencer's rhetoric together with the prevailing opinion of the age might very well have pressed me into the service of social evolution with its emphasis on the survival of the fittest. The process of evolution, says Spencer, "*must* be undergone and the sufferings *must* be endured. No power on Earth, no cunningly-devised laws of statesmen, no world-rectifying schemes of the humane, no communist panaceas, no reforms that men ever did broach, can diminish them one jot. Intensified they may be, and are; and in preventing their intensification the philanthropic will find ample scope for exertion. But there is bound up with the change a *normal* amount of suffering, which cannot be lessened without altering the very laws of life." The theory of evolution served admirably well in the nineteenth century to prove the necessity of social selection. It was a convenient philosophy for an age which believed in struggle.

There is a difference between the *Communist Manifesto* and *Capital.* The *Manifesto* is violent, revolutionary, immediate. *Capital* is analytical, learned, thorough. It was *Capital* that influenced the socialists. It was the *Manifesto* that influenced the revolutionaries, and it was the *Manifesto* which employed the major features of the dramatic fallacy. The *Communist Manifesto* (1848) is as much a document of nineteenth-century belief in struggle as Spencer's *Social Statics.* The *Manifesto* insists with theatrical vigor that "The history of all hitherto existing society is the history of class struggles." And class antagonisms are simplified into two-valued melodrama, the good versus the bad, as in the popular plays of nineteenth-century dramatists like Scribe and Sardou. In a bloody struggle of will against will, the proletariat attempts to take by force what the bourgeois manufacturer has, and the bourgeois manufacturer attempts to keep by force what he has until "the violent overthrow of the bourgeoisie lays the foundation for the sway of the proletariat."

At the risk of performing a *tour de force,* I cannot refrain from pointing out how much the *Manifesto* is indebted to the dramatic values of the theatre. The *Manifesto* has a single plot, history. It enjoys unity of time, the last struggle; unity of place, the whole world; unity of action, the economic interpretation of history. Moreover, the characters of the drama behave with admirable consistency, the proletariat for the revolution, the bourgeois for himself; and the dialectic in the background is the perfect motive for their behavior. More exciting still, of course, is the inevitability with which the dialectic (fate) moves. It is Sophoclean. And we may also note that throughout the grim struggle, society has been turned upside down, moral values have whirled in a state of anarchic confusion; but in the end, as in all great drama, the tables are turned, power changes hands, there is a reconstruction of the parts into a new organization, and a new moral order is established.

Never was there a more wholesale belief in the dramatic movement of life, that it is rushing headlong to the final catastrophe, and to the subsequent political plateau where all shall be Hegelian order. It is written that there shall be strife and anguish until the judgment day, for of necessity that is the way the world operates. And it is important to remember that of this the romantic writers, and Malthus, Hegel, Darwin, and Karl Marx were profoundly convinced.

It is seldom pointed out how much psychoanalysis owes to nineteenth-century philosophies of struggle. Sigmund Freud's theories were made possible and are still supported by the notion that conflict is nature's way of life. Freud's contribution

to modern thought lies in his transference of the theory of conflict in nature to the theory of conflict within the human mind. Psychoanalysis says that conflicts arise in the individual as a result of the repression of instincts, this repression having been brought about through a losing battle with the rules of civilized society.

Freudian psychoanalysis did not become popular until the second decade of the twentieth century, and for this reason it is common to think of Freud's theories as highly contemporary. But it should be remembered that Freud was born in 1856 and that by 1886 he was already a specialist in nervous diseases. In *An Autobiographical Study* he says that when he was a student at the Gymnasium in Vienna (prior to 1873 when he entered the University) he was "strongly attracted" by the theories of Darwin, "which were then of topical interest . . . for they held out hopes of an extraordinary advance in our understanding of the world." It is impossible to read Freud (even his last works) without being sensible of how much he was indebted to the nineteenth-century hypothesis that struggle is the basic law of life.

Specifically, Freud founds his psychoanalytical theories on what he calls the unceasing conflict between Eros, the life principle, which expresses itself in the urge to create, and the death instinct, which expresses itself in the urge to destroy. Of Eros he says that it

> aims at binding together single human individuals, then families, then tribes, races, nations, into one great unity, that of humanity. Why this has to be done we do not know; it is simply the work of Eros. These masses of men must be bound to one another libidinally; necessity alone, advantages of common work, would not hold them together. (*Civilization and Its Discontents.*)

And of the death instinct he says:

> The natural instinct of aggressiveness in man, the hostility of each one against all and of all against one, opposes this programme of civilization. This instinct of aggression is the derivative and main representative of the death instinct that we have found alongside of Eros, sharing his rule over the earth. And now, it seems to me, that the meaning of the evolution of culture is no longer a riddle to us. It must present to us the struggle between Eros and death, between the instincts of life and the instincts of destruction, as it works itself out in the human species. This struggle is what all life essentially consists of and so the evolution of civilization may be simply described as the struggle of the human species for existence. And it is this battle of the Titans that our nurses and governesses try to compose with their lullaby-song of Heaven! (*Civilization and Its Discontents.*)

Just as there is a powerful procreative force at work in nature, combatting the equally powerful destructive force, so there is in each of us a sexual urge which must express itself in one or another form of creativeness and which has declared eternal war upon the opposite equally strong characteristic of our natures which wants to kill.

In an age which idealizes conflict, the individual finds great confusion between practice and precept. He is told to strike out and not to strike out. When he is told to strike, he lavishes his repressed antagonisms on the enemy; when he is told not to strike, he turns his belief in conflict inward, and wrestles long and painfully with himself. For it is written that whether inwardly or outwardly, he *must* struggle. Aggressiveness, says Freud, is "internalized." It is

> directed against the ego. It is there taken over by a part of the ego that distinguishes itself from the rest as a super-ego, and now, in the form of 'conscience,' exercises the same propensity to harsh aggressiveness against the ego that the ego would have liked to enjoy against others. (*Civilization and Its Discontents.*)

From this deadlock arise those pains and sufferings which accompany and are part of neuroses. Guilt and anxiety are the issue of the struggle. Freud suggests (like Hegel and Marx before him) that only when civilization has made possible the ideal order for men to live in shall the struggle cease.

The appeal of psychoanalysis to dramatists, novelists, and the movies is easily accounted for. To be consistent with the cultural changes taking place in the western world, story-tellers at the turn of the twentieth-century were in search of new explanations for the motives of human behavior. It was in Freudian psychology that they found the explanation, an explanation which put the motives deep within the human being, hidden, subtle, powerful. Moreover, in a world of violence, the principle of conflict could be revitalized and made useful by turning the struggle inward. Psychoanalysis provided a new framework upon which to hang the plot and a new technique for presenting character. Moreover, psychoanalysis lent itself readily to the dramatic view of life because Freud himself was essentially a dramatic poet. He was a master of form and of imagery. His logic is seductive, like the logic of all good drama. He is plausible when we read him, as convincing as the finest dramatist, and his plausibility is the result of the dramatic structure of his writings — the exposition and statement of premises, the preparation, the beautiful sequential development as the plot of consciousness unfolds, and then the revealing climax.

I should like to conclude this survey by describing one curious effect which the dramatic fallacy

has had on everyday contemporary life. I refer to the make-believe in which the West loves to indulge. We play house in a fantasy world of let's pretend. We arrange ourselves like the dress models in slick advertising, like the movie actor or actress, preparing for the tableau or the close-up. How seriously we take ourselves. What extraordinary people we are, taking an indispensable part in a great drama.

It may be said that this attitude is as old as human nature. Perhaps. But there has been added to it an element which brings it remarkably up-to-date. We have added to the sense of playing a part a heavy self-consciousness, the burden of our awareness of ourselves. We are not content to be actor alone, we must be also and at the same time spectator, the spectator of ourselves. Kafka makes this entry in his diary (1920): "A segment has been cut out of the back of his head. The sun, and the whole world with it, peep in. It makes him nervous, it distracts him from his work, and moreover it irritates him that just he should be the one to be barred from the spectacle." We watch ourselves as we walk down the street, evaluating, at arm's length, our interpretation and playing of the role we have selected. This critical awareness of our behavior is doubtless a legacy of the Reformation, of the puritan insistence on self-inspection and self-criticism. This wearying load of self-awareness has been described innumerable times in modern novels, in modern plays, and in modern poetry, but seldom has it been more succinctly put than in T. S. Eliot's poem "The Love Song of J. Alfred Prufrock." Prufrock examines his every move with microscopic care:

> 'They will say: 'How his hair is growing thin!')
> My morning coat, my collar mounting firmly to the chin,
> My necktie rich and modest, but asserted by a simple pin—
> (They will say: 'But how his arms and legs are thin!')
> Prufrock has known the eyes,
> The eyes that fix you in a formulated phrase,
> And when I am formulated, sprawling on a pin,
> When I am pinned and wriggling on the wall . . .

It is impossible for him to say just what he means. And that is because he sees himself too well, as if, indeed, "a magic lantern threw the nerves in patterns on a screen." So expert have some moderns become in achieving to this perspective that they can watch themselves, as in a dark theatre, acting out a part on the floodlit stage of life. The facts of consciousness, the conflicts of mental states, the aspirations and frustrations of the self projected out of the barriers of space and time, the drama of a self, as of a character from a play by Pirandello, willing madly for articulation — what a drama indeed!

From time immemorial men have sought to give form to nature and meaning to human experience. Human life would be an intolerable confusion of anarchic instincts, would be impossible, we think, without the appointment of some system to give order to the succession of images that pass before our senses, imposing their terrors and their blisses upon our minds. One might venture to define consciousness as the very explicit and constant endeavor to arrange all things aright according to some programme. Essentially all orders are craft, and essentially every view of life is aesthetic, for we think the details of life into a pattern and a logic.

Despite two thousand years of the gospel of Jesus — of unqualified peace and brotherly love — our intellectual orientation, our programme, has been supplied to us from those arts, sciences, and philosophies that have delineated the world as dramatic struggle. For some reason or other we prefer to believe with Herbert Spencer that all nature is pervaded by a state of "universal warfare," and we are endlessly beguiled by the spectacle of a will striving against an obstacle. And in our world literally everything and everyone is, so we think, a potential obstacle. For centuries, human beings have put their faith in the fiction that conflict and struggle are deeply rooted in the nature of things, that that is the way the world *is*.

And yet all the evidence, if one is unprejudiced by the dramatic fallacy, is not on the side of struggle. One may prefer the romantic rebelliousness of Lord Byron. But it must be admitted that there is something real and meaningful in Wordsworth's ideal of tranquility, and a faint suggestion that his philosophy is more enduring. The Malthusian theory of population may appear to be well supported by population statistics, but Henry George's argument that poverty does not result from the niggardliness of nature but rather from the maladjustments of men cannot be overlooked.

According to Newtonian physics, equilibrium is preserved through the mutual antagonism of the parts; yet everyday experience will often dictate quite the opposite. Woodrow Wilson observed that "No living thing can have its organs offset against each other as check, and live. On the contrary, its life is dependent upon their quick cooperation, their ready response to the commands of instinct or intelligence, their amicable community of purpose." And although the Darwinian hypothesis states conclusively that all life is a struggle for existence, still one cannot discount the importance of cooperation for existence. "In the history of the world, the prize has not gone to those species which specialized in methods of violence, or even in defensive armour," says Alfred North Whitehead in *Science and the Modern*

World. And he adds: "Lions and tigers are not the successful species. There is something in the ready use of force which defeats its own object. Its main defect is that it bars co-operation. Every organism requires an environment of friends to shield it from violent changes, and partly to supply it with its wants." Moreover, before we trouble ourselves with the problems of social Darwinism, we ought to make sure, as Messrs. Dunn and Dobzhansky have said (*Heredity, Race and Society*), "that there actually is a law of nature which demands strife as the price of biological survival."

It seems to me that Hegel and Marx took a rather limited view of life in that they saw all experience, all happenings, as struggle and contention. And it is true, of course, that the majority of people believe the world to be an arena of vicious competition, that it *has* to be that way. But is it not possible that human behavior is a function of human beliefs, and that if we believed life to be an experience in cooperation, we might not behave as though it were?

But by far the most convincing proof that a theory of cooperation shall take the place of the theory of struggle is the new and as yet inarticulate mythology of universal peace. This is a mythology of the together rather than of the separate, of the with rather than of the against, of today rather than of tomorrow, of inner as well as of outer harmony. Some of us are not aware yet of its presence, but the belief is already rooted. What shall be (or are) its images, its rationale, its artistic and political expressions, we do not know, for they are only just forming. But we may get a hint from the social sciences. Just as we have had to abandon age-old categories in the physical sciences — as, for instance, absolute space — so we shall have to abandon traditional categories in social thought like the notion of conflict. And if one inquires profoundly enough, he will see that the latter is, in effect, precisely what vital social thought is working to accomplish.

History is not the story of man's struggle for existence. History is the story of man's efforts to overcome the wisdom of Silenus. Despite the fact that the sentiment of common purpose and common effort has been shamefully debased on all sides in the modern world, that it has in reality all too often served only as a deception and a political shibboleth designed to cover up deep-lying hatreds, and despite the whole of nineteenth-century thought, the cooperative is the only way of life and work that makes for beauty and goodness.

Three Sonnets

1

Perhaps, because I've grown too old to care
What happens to my body, flesh and bone,
That may be one good reason why I dare
To contemplate the loss of stick and stone,
Of tree and hill and mountain; all I own
Of earth and water and sky, these things I wear
As close as any garment; like a crown
For all my thoughts, with earth so bright and near.
Who could have held it closer, loved it more?
And yet, if this new energy should blast
Mountains to molehills, at some dreaded hour,
And flesh and bone to nothingness, the past,
All its forgotten cataclysms show
How mind and root may rise again and grow.

2

"The world is too much with us." This has been
A growing menace through the flowing years;
And now the time has come when all our fears
Are centred on the terrible, unforeseen
Results of these new findings. Man was keen
To stretch his mind beyond the old frontiers,
To shatter time across the hemispheres;
For yesterdays were slow and dull and lean.
What is this fear? Fear for annihilation
Of all our loves and hopes and plans; the death
Of this lifetime; a boasted civilization
Gone in one sudden, hot and fiery breath?
Have we forgotten that in our creation
There is no death, only a new birth.

3

How could we argue that it was not best
For man to shape his world with head and hand,
Developing new skills to understand
The way to progress, eyes set toward the crest,
A tangible gain, but lost, that primitive
Reliance on a higher, boundless good.
Worldly desires are in our common blood,
The infinite values harder to conceive.
Now is the moment! We must turn, must look
For balanced concepts, for a faith long lost;
Not in the crowded pages of a book;
Wider than words; something to hold fast,
Something that stands above all transient fear,
Something to live by, infinite but near.

—Florida Watts Smyth

FROM BOOKS & JOURNALS

In *The Humanities in General Education,* and *Communication in General Education,* (Wm. C. Brown Company, Dubuque, 1949, $3.25 and $3) Dr. Earl J. McGrath, U. S. Commissioner of Education, brings to four the volumes which sample for us the various kinds of courses of study which have been prompted by the general education movement of the Forties. The second of the two present books shows the effects the nation over of the impact of *The Meaning of Meaning* and the General Semantics movement upon campuses. Both volumes are compilations of close descriptions of courses, and principles upon which courses have been developed, and the whole series forms an indispensible compendium for faculty committees upon curriculum, where changes are still going on toward general education.

Opening *The Humanities in General Education,* the editor remarks: "All thoughtful persons are concerned about the lack of an integrating factor in contemporary life. The present disorder contrasts sharply with the closely knited societies of earlier times. Both ancient Greece and the Middle Ages, for example, were characterized by a unified social life based upon a set of guiding principles or world view, the former the metaphysics of the Greek philosophers, the latter, the theology of Thomas Aquinas." He ascribes the revived concern about the Humanities to this consciousness of our philosophical failure. The materials published by Commissioner McGrath in these four volumes admirably record in many ways and places this deep anxiety of our times; and in days to come they will remain to show that the Forties did honestly confront the problem of the conceptual breakdown.

But we cannot rest here. A next step has nw to be taken, and it appears that in the Fifties it will be taken. Indeed, Dr. McGrath himself is associated with one effort to introduce those broad generalizations into the educational process which will amount to a new philosophy of education.

The moment this task is taken up seriously, certain problems will at once arise. If we are to convey insight into the universe, the first point is to decide what constitutes the most important content in th courses taught. As it is obviously impossible to cover the universe descriptively in twenty lives of study, we are compelled to choose such content as will everywhere be conceded to have critical conceptual meaning.

One of the most extraordinary phenomena ot our times is the failure to see this requirement. It is really a failure to understand what is real knowledge, what is exact science. A retreat to the humanities by themselves is not going to help us. We have to come to grips with all the new materials of knowledge, and the bulk of this data is in the sciences. There are those institutions which seem to indicate by their practices that method can be substituted for content. Are we then to teach without content?

Experience shows first, that it is not possible to equip college graduates with required tools (intuition, logic, mathematical theory, and reflection) and skills (mathematical operations, languages, etc.) and habits (of emotions and manners, for example) without reference to the content of learning; and second, that the communication of those tools, skills and habits would not be enough to integrate the individual even if we could teach logical, mathematical and dialetical theory alone.

The second decision we must make is as regards breadth of interests. In the Humanities courses which Dr. McGrath here assays so handsomely there is one almost universal saddening feature, even at Harvard, where at least the frivolous divorcement of content from method is not countenanced. The materials employed on most campuses have reference almost only to Western culture. Here and there some polite nods are seen toward Eastern cultural wealth in general humanities courses. So long as this parochialism continues, the movement toward universals, concepts, principles, and the like will continue to be aimless. Either we are for one world, or we are not. If we are for one world, let us educate in those terms.

If teaching at the conceptual level, and content drawn from the cultural wealth of the whole world, be admitted necessities, we are then confronted with the final necessity: Research. It is, quite simply, impossible to put together contemporary knowledge or content of physics, biology, and psychology without examining those domains all over again in new terms. It is to be hoped that all higher authority in education, commencing with the offices of the Commissioner himself, will assist to make possible the integrative studies required to rest broad generalizations upon known data, by means of concepts clearly derived, by methods shown.

If the good work of the Forties is to come to something in the Fifties, we must have something better than locally arbitrated opinion. Faculties must be equipped with the materials which will enable them to possess a store of significant knowledge in common, the rough hewn materials for a new philosophy of education. This means research of a kind we have all lost sight of too long, namely, studies of wholes, of fields, of space-time, of man

as man, and all the rest of the basic simples which behaviorism, mechanism, physicalism, nationalism, and reductionism of every species have falsely offered to us, spurious doctrines which advertise our philosophical barrenness.

We need a national program of research into the conceptual inter-knitting of contemporary science and the inherited cultural wealth of the whole world. Without such a program, the search for generalizations will end up in generalities.

This program is more important than that which applies to atomic energy, although it will cost a hundredth part thereof.

We have argued above that the greatly enlarged content of information and modern knowledge can be brought into a manageable form by reduction to concepts, that is, to principles, universals, verities, and laws which will receive general assent because their sources, derivations and importance are demonstrable. Since in any case the tools, skills and habits must be taught in reference to some content or other, the broader the content the more effective the equipment will be. Most important of all, the consequences of such a program will be the awakening of conceptual and philosophical powers and interests in the individual so that he will seek a world view. Creation of such leadership is our need.

The final question is: what effects can be expected if we succeed?

Death is the fate of those nations whose leadership is engaged with "purely practical pursuits." Educators who are willing to concentrate on committing the country to that disastrous course have surely betrayed their own cause, for in human society, the most practical happens to be the truly valid abstract, the greatest degree of principle, the most generalized law, the demonstrable universal. It is true that individuals and small groups can get physical wealth and a measure of mere earthly security by being overly concrete minded and self-centered. But the level and security of a whole society is determined by the on-balance ascendency of its well-guided altruists and its competent philosophers.

The importance of conceptual education is high even if war is the chosen instrument of public policy. Who are the geniuses who are making possible the means of destruction now being readied, and possibly used this very year, converting the good green earth into an evil, blackened hell? The patriotic men and women best educated in abstract learning are the people necessary to Dr. Karl Compton, if technicians are to be guided to convert whole sections of countryside into a waste land of bones and stumps, and whole cities into fetid rubble.

It is happily also true that if ever the public policy of the United States should finally disavow war, it will be because a group of scholars, expert in valid abstracting, have convinced the country and the world that there is a better way than war for mankind. To give this kind of guidance they must show that mankind is a brotherhood, despite the cynicism of those who believe chiefly in things material, physical and ephemeral. This conviction will never come about through an irrational flight to religion alone. That grandest of all concepts, the brotherhood of man, cannot take its proper place as a mere emotion. It too, no less than the science which leads to guided missiles, has to be rested upon known and accepted law, taught in education and good for a world culture. Nor is a political world federation contrived out of ignorance, despair, and exhaustion likely to endure for very long, without insight into man's real nature and his true purposes. Such knowledge involves a cosmology, since man is imbedded in nature. Until learning has achieved the fair beginnings of this, and set it up in terms of systematic instruction, there is little hope of converting our material civilization into a peaceful world culture. And so it turns out that the really practical people are, as ever in such an historical transition, the competent philosophers.

F. L. KUNZ

An excellent new textbook designed to introduce beginning students to the more important ethical theories and principles and their application to contemporary problems is *The Principles of Conduct,* by Daniel Sommer Robinson, Director of the School of Philosophy at the University of Southern California. The comprehensive table of contents covers a discussion of the nature and problems of ethics, an historical survey and evaluation of representative theories among various civilizations which have made significant contributions to moral philosophy, and in the section on Applied Ethics, an extensive consideration of the ethical implications of fission and the atomic age, together with applications of ethical principles in the fields of business and industry, law, government and social relations. (Appleton, 1948, 420 pages, $3.25.)

Dr. Robinson says in his preface that he has for a long time had "an ambition to write a textbook in ethics to provide beginning students with an adequate survey of ethical theories and principles and their applications, and to equip them with a sufficient understanding of moral concepts to enable them to formulate a sound personal philosophy of life." The adequateness of his survey is without question, but more important is his effort to stimulate the student to form his own evaluations and so gain a personally creative philosophy. In order to bring home to each individual the personal impact of all these abstract

ideas and theories, he has provided a number of teaching aids in the form of problems, diagrams, etc., which assist the student in practical application, and throughout he attempts by graphic illustration to relate principles to life.

The author makes no pretense of being merely an impartial reporter of differing ethical values. In classifying the possible philosophical positions as four—naturalism (or realism), idealism (or spiritualism) pessimism correlated with naturalism and optimism correlated with idealism—he explains that in practice these four reduce to two basic types, the two alternatives of Pascal and James. "In building a philosophy of life we have to decide whether we will choose materialism, naturalism, realism and accept the practical consequence of a pessimistic outlook on life, or whether we will choose idealism, spiritualism, theism, and hold to an optimistic attitude toward life." Dr. Robinson makes it clear that he considers religion a necessity to man, whether expressed in traditional theological belief or as scientific humanism, and that the religious view of man as a free and responsible moral agent has more validity than the logical positivistic view that man's ethical judgments are non-cognitive and merely derivative. He states his position as follows: "*In Human Destiny* the late distinguished scientist, Lecomte du Nouy writes: 'The reality of free will is an absolute necessity for all religious people, all those who do not look upon man as a mere animal, an irresponsible cog in a huge and purposeless machine, all those who believe that man can shape his own destiny.' And he adds: 'Scientifically, therefore, the existence of free will cannot be brushed aside. In fact, it remains as the only acceptable hypothesis.' This is the conception of human behavior which has been assumed throughout this book. Libertarianism, determinism, and fatalism rob man of the control he exercises over his own destiny. Ethics has to postulate our freedom to choose between alternative acts, for without such freedom no man could really be a moral agent."

Dr. Robinson recognizes that each of the cultural values of science, art, morality and religion, satisfies a profound need in the individual and must find a place in his philosophy of life, and therefore that an understanding of how cultural values are interrelated is a prime necessity for man. To his mind, however, such interrelationships are based entirely on the fact that religion acts as a kind of cultural reagent, holding the other aspects of cultural activity together, and referring them to their final goal, which is God. He therefore makes no suggestions for the establishment of such cultural interrelationships beyond the necessity for living ethically or religiously. His ethical views are broad, however, and his religion far from narrow (although we must protest as quite mistaken his evaluation of the teaching of the Buddha as "ethical nihilism"), and his final exhortation to the student worth more than a casual reading:

"In building your personal philosophy of life be serious, but not too serious; be hopeful but not too hopeful; be sceptical but not too sceptical; be pious but not too pious. Find your own golden mean, and it will be for you the philosopher's stone that will transmute your dread and anxiety, and your hopes and longings into the noble blessedness which is the high and serene destiny of your earthly existence. Nothing can possibly be as important to you personally as the philosophy of life which you can build for yourself. No one else can write it for you. It must be your very own. This is the task most peculiarly appropriate to the student of ethics. Tell yourself why you are living, and tell others what you intend to make out of yourself. If you put this in writing, your study of ethics will not have been in vain."

E. B. Sellon

Engineering the New Age, (Ives Washburn, New York, 1949, $3.00), is a rarely stirring book, writen out of his experience and his heart by John J. O'Neill, the science editor of the New York Herald-Tribune. Mr. O'Neill offers no narrow minded and mechanical engineering interpretation of new social planning. His mind is illuminated with a vision nearer akin to that of William Blake, and his study is of the earth as a whole, in a cosmos understood. The book is adorned with admirable flashes of light. Discussing cities as cells of an organism, the nation, he says (page 217): "There will be constellations of related cities in which related units of industries will be located. The smaller units will bring about much healthier social and industrial relations. . . . In addition to these organic units, there will be specialized national cities." Of these, some would be "national convention cities. . . . There would be university cities and resort cities. *Each city would have a purpose in life.*"

It has long since we have seen a small book so studded with such home truths as the phrase we have above italicized. In fact, it may be said of this science writer that he has transcended gadgetry once and for all. His present book will be as widely read as is the new incarnation of *Scientific American,* which by espousing the cause of insight, engulfed a few months ago the rival launched by a rich publisher without benefit of philosophy. O'Neill, like some few others, has discovered the truth about present science which Fredericka Blankner embodied in two lines

(quoted by our author on his page 29: from the poet's volume, *All My Youth,* Brentano, New York):

The universe is strung upon a single thread.
Tug at an atom and a star falls on your head.

Webs in the Wind, by Winifred Duncan, (Ronald Press, New York, 1949, $4.50) is a triumph for several reasons. For one, it might have been (and is not) a woeful welter of sentiment, with more author and less theme than the reader could have endured. It is, instead, a vivid highly personal account of many months of observation of the baits of web-weaving spiders. It has not even the most distant kinship with the pseudo-scientific book which condescends (with heavy or else light jocularity) to the subject matter, the reader, and the universe; those (one hopes) fast disappearing books in which only the author is no insect. Nor is there here a 'scientific text", making the subject so dry as to choke off interest in the general reader with the dust of data. Instead it ranks up the lives and times of these fascinating beasts under sixteen research points, as experienced by the reader along with Miss Duncan.

Webs in the Wind is beautifully and lovingly illustrated by the author in 101 figures and 77 plates; it is handsomely printed on 381 large pages, with index; it is an ornament to the Humanizing Science Series, edited by Jaques Cattell. Reading it, we found ourselves wishing that this author could unravel for us a few more puzzles in biology. For a starter: Why do insects go in so heartily for six legs and other systematic numbering, and spiders for eights so generously? One suspects that Miss Duncan's work has just seriously begun, but if this book is her measure, it is well and truly begun. F.L.K.

The Road to Reason, by the late Lecomte du Nouy (Longmans, New York, 1949, 253 pages with index, $3.50) may not achieve the vogue of his *Human Destiny,* but it is likely to have more enduring use. The author is concerned with the meaning of recent scientific theory in thermodynamics and probability in one group, in contrast with evolution, determinism, and Heisenberg's principle of indeterminacy, in another. He shows in the first that macroscopical statisical law (Gibbs-Boltzman statistics) are invalid in organisms. The second part offers a reinterpretation of evolution in which distant, meaningful, and valued goals become final, but ways of attaining these ends are varied. He concludes that the universe is not meaningless, nor its process fatalistic.

PERCEPTION AND CONCEPTION IN EDUCATION

By FRANK C. WEGENER
School of Education,
University of Southern California

Immanuel Kant said that percepts without concepts are blind and that concepts without percepts are empty. The implications of this statement are very important for a well-balanced philosophy of education. In recent times there has been a steady development of the empirical point of view in modern thought and modern education. From the time of John Locke's enunciation of the "tabula rasa" theory and his denunciation of the doctrine of innate ideas, empiricism has exerted a tremendous influence on our thinking. The many diverse ramifications which followed British empiricism in terms of schools of thought need not be outlined here. But it should be noted that much of the educational theory dominant today tacitly assumes the Lockean rejection of *a priori* or innate ideas. Or putting it more positively Dr. Meiklejohn has suggested that "Down with the *a priori!*" has become one of the war cries of modern pragmatism. Educationally such an assumption places all of our educational theory and practice upon a strictly empirical base. The assumption begs one of the most challenging issues ever faced by man in philosophy—the question of how we know. It castigates the rational theory of knowledge without examination or consideration. In effect it places almost the entire emphasis of educational procedure upon a perpetual type of education. This observation brings us back to the statement made by Kant concerning the relative importance of percepts and concepts.

The consideration of the meaning of this statement implies that educators should be cognizant of the implications of epistemology, or the study of theories of knowledge. I should say that the subject has remained too long neglected in many of our educational courses. Teachers have too often been expected to accept the conclusions of certain educational philosophers regarding the technicalitis of philosopehy rather than bothering themselves with the problems. This attitude has been particularly unfortunate because teachers have proceeded to apply educational philosophies they really did not comprehend. If teachers are to have genuine philosophies of education which are really theirs, they must come to grips with some of the great problems of philosophy. They must,

for example, consider the arguments both for and against empiricism and rationalism, rather than accept either blindly.

As a case in point let us consider some of the implications which might be contained in Kant's observation concerning percepts and concepts. In the first place, Kant himself did not accept either empiricism or rationalism wholeheartedly. He is well known in the history of philosophy for his noble attempt to reconcile or integrate the long conflict between the arguments for empiricism and those for rationalism. In his monumental work, "The Critique of Pure Reason," Kant addressed himself to the problem of relating synthetic judgments of reason to the empirical data of sense. It was Kant who certainly asserted the subjective existence of the *a priori* and the categories of human thought. The chaotic world of sense data receives its meaning and orderly relationship from the conceiving mind which is equipped with the *a priori* categories and make intelligible experience possible.

Educationally speaking, the historical emphasis upon perceptual or conceptual learning leads inevitably to error. Conceptual education without the substance of perception degenerates into a mere verbalism, if one is not careful. Perceptual education without arriving at conceptual judgment fails to utilize that which is most important in human capacity. Perceptual learning is that awareness of the external existence of objects such as chairs, trees, persons, houses, and the phenomenal world about us. Perceptions may vary from the extreme of animal awareness of a "something" which exists to a human apprehension or recognition that it is this or that. Perception is to be distinguished from the higher aspects of ideational thinking such as imagination, judgments, remembrance, and conception. One may function on an animal level of perception without any very great degree of conceptual insight. One may be perceptually aware of "water" as desirable without the rational conception of H_2O. The teaching of the abstract symbols representing chemical formulae without the perceptions of sense data would no doubt be very sterile and unprofitable. Such a process might well approach the memorization of nonsensical letter arrangements. On the other hand, mere dabbling with particular chemicals without formal identification and representation in terms of proportions and relationships might be almost equally unprofitable.

What are the educational implications? Foremost, teachers should not slight either the empirical or the rational aspects of the learning process. Every unit of study should have its essential concepts and percepts. In other words, every unit must be seen in the light of the generalizations, principles, and concepts which are to be abstracted from the learning experiences and are rooted in firsthand observations, vicarious learnings, audio-visual experiences with aids, and particular experiences. The teacher who slights either one of these phases does a poor job. Of course, it is to be expected that students will vary considerably in their ability to generalize and achieve conceptual understanding. But the principle still remains the same as to a proper porportion of the perceptual and the conceptual.

Still more important is the implication that we should not overlook the all-important place of *form* in education. Learning certainly involves structuring and seeing relationships. This matter of "seeing" relationships may properly be taken in both the physical and mental sense. One may be able to "see" a right triangle in his mind's eye as an image, and he may also be able to "see" the right triangle mentally inasmuch as he understands the geometric principles involved in any right triangle. Thus *forms* in the learning process have both a sensible and a rational meaning. Both are essential.

Form is more evident in some subjects such as mathematics, logic, grammar, and the sciences and the arts. Realistically, these forms are in a sense external to the learner. These same forms have been discovered by the experiences and thinking of mankind. They represent the symbolic representations of relationships which are mean to facilitate human thought and action. As represented in mathematics, logic, science, and grammar, these forms are not merely the arbitrary expressions of man; they are the necessary manifestations of inherent real relationships.

Unfortunately, it appears that the strictly formal relationships have been stressed by formalists in education. They have too often neglected the material and sensible aspects of reality. Now we must not err on the side of being overly engrossed in the sensible and the material. Rather in the structuring of human thinking and understanding it is important that we attach adequate emphasis to both the material and formal aspects of the content of learning. This is another way of arriving at the conclusion that education must always embrace the correlatives of theory and practice. Practice becomes more significant and meaningful in the light of theory; theory becomes more readily understood in view of practical experience.

In our enthusiasm to make schools "lifelike" and "purposive" and "real" have we not neglected the essential *forms* of understanding? In our conservative schools have we not neglected "activity,', "participation," "firsthand learning experiences," in our desire to give youngsters the essential forms and principles of learning?

There is much food for thought in Kant's observation that percepts without concepts are blind, and that concepts without percepts are empty. Let us make sure that in our teaching we make provision for both aspects of the learning process.

MEMBERS OF THE RESEARCH COORDINATING BOARD

(Members of the Executive Council of the Board are starred, ex officio members double starred)

*Henry Margenau, Chairman, Professor of Physics, Yale University

Frank Aydelotte, Former Director, Institute for Advanced Study

Arthur Compton, Chancellor, Washington University

John M. Fogg Jr., Vice-Provost, University of Pennsylvania

Robert S. Hartman, Professor of Philosophy, Ohio State University

Clyde K. Kluckhohn, Professor of Anthropology, Harvard University

**F. L. Kunz, (representing the Foundation for Integrated Education), Counsellor on Studies of the Foundation

**Kirtley F. Mather, Professor of Geology, Harvard University, and President, Foundation for Integrated Education

*M. F. Ashley Montagu, Chairman, Department of Anthropology, Rutgers University

*F. S. C. Northrop, Sterling Professor of Philosophy and Law, Yale University

Linus Pauling, Professor of Chemistry, California Institute of Technology

Gerald B. Phelan, Director, Mediaeval Institute, University of Notre Dame

J. B. Rhine, Director, Parapsychology Laboratory, Duke University

Edmund W. Sinnott, Director, Sheffield Scientific School, Yale University.

P. A. Sorokin, Professor of Sociology, Harvard University

Julius Stulman (representing the Foundation for Integrated Education), President, Stulman-Emrick Lumber Co., Inc.

Ordway Tead, Editor and Director, Harper & Brothers, and Chairman of the Board of Higher Education of New York City

Among the Foundation Sponsors are:

Albert E. Avey	Chairman, Department of Philosophy, Ohio State University
J. S. Bixler	President, Colby College
Kenneth I. Brown	President, Denison University and Association of American Colleges for 1948
Judson Rea Butler	Dean, General College, Boston University
Carter Davidson	President, Union College
J. Ollie Edmunds	President, John B. Stetson University
C. L. Emerson	Vice-President, Georgia Institute of Technology
Robert S. Hartman	Associate Professor of Philosophy, Ohio State University
Samuel M. Hilburn	President, Dakota Wesleyan University
Carl Jung	Zurich, Switzerland
M. Avramy Melvin	Formerly Associate Professor of Metallurgy, Columbia University
J. Hillis Miller	President, University of Florida
A. A. Potter	Dean, College of Engineering, Purdue University
Marie I. Rasey	Professor of Educational Psychology, Wayne University
Oliver L. Reiser	Profesor of Philosophy, University of Pittsburgh
J. B. Rhine	Professor of Psychology and Director Parapsychology Laboratory, Duke University
P. A. Sorokin	Professor of Sociology, Harvard University
Herbert L. Spencer	Former President, Bucknell University
Henry Bailey Stevens	Director, Extension Services, University of New Hampshire
Gustaf Stromberg	Astronomer, Retired, Mount Wilson Observatory, Pasadena
Ordway Tead	Editor and Director, Harper & Brothers; Chairman, Board of Higher Education, New York City
Myron F. Wicke	Dean, Baldwin-Wallace College
Alan S. Wilson	President, Hillyer College

PROVISIONAL EXECUTIVE COMMITTEE

Officers

Kirtley F. Mather	President, (Professor of Geology, Harvard University)
F. L. Kunz	Vice-President; Editor of MAIN CURRENTS IN MODERN THOUGHT
Roger C. Gay	Secretary, (Assistant Dean, New York Medical College)
John A. Sellon	Treasurer, (American Reinsurance Company, 99 John Street, New York City)

Other Members

Thomas Witter Chrystie	(Chrystie and Chrystie, 20 Pine St., New York City)
Gordon B. Halstead	(58 Ralph Avenue, White Plains, New York)
Arthur Hood	(American Lumberman, Chicago, Ill.)
A. A. Medved	(152 Madison Ave., New York City)
A. Gordon Melvin	(Professor of Education, College of the City of New York)
Carlton M. Sherwood	(Pierce, Hedrick and Sherwood, 30 Rockefeller Plaza, New York City
Julius Stulman	(President, Stulman-Emrick Lumber Co., Brooklyn, N. Y.)
Samuel P. Wetherill	(Wetherill Engineering Co., Philadelphia, Pa.)

Edward F. Haskell, Research Associate